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THE NATURE OF CONCEPTS

BY

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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE NATURE OF CONCEPTS submitted by Arthur Campbell Purton in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Philosophy.

ABSTRACT

In this thesis I offer an account of what concepts are, and of what it is to have a concept.

In Chapter 1 I discuss several accounts of concepts which have been given by philosophers and psychologists. So far as concept possession is concerned there appears to be some agreement that to have a concept is to have a certain sort of capacity, but there is disagreement over whether the capacity in question is a capacity to recognize, to judge, to use language appropriately or to follow rules. I leave aside the question of whether concepts are capacities until Chapter 6, and in Chapter 2 give an account of capacities which I base on a preliminary discussion of dispositions and natural necessity.

Having discussed capacities in general I discuss in Chapter 3 the notion of recognition, since several philosophers have held that to have a concept is to have a recognitional capacity. This account of recognition in its turn requires an account of judgement, which I give in Chapter 4. In Chapter 5 I discuss the relation between my account of concept possession and that account which holds that concept possession is a matter of having a certain linguistic competence.

In Chapter 6 I reject the view that one can validly deduce that concepts are capacities from the premise that to have a concept is to have a capacity. I give an account of concepts as the standards by which one judges whether things are of certain kinds, drawing on my discussion of judgement in Chapter 4 to elucidate the idea of a 'standard'.

In the final sections of Chapter 6 I discuss such notions as 'conceptual connections', 'conceptual frameworks' and 'conceptual development', relating these notions to my previous account of concepts and concept possession. Finally, I consider what light my account throws on the various accounts of concepts mentioned in Chapter 1. I show that there is some truth in most of these accounts and that what is of value in each of them can be integrated in the account I have given.



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NOTE ON NOTATION

I shall normally use capital letters in order to indicate that I am speaking of concepts. Thus I shall speak of the concept Belief, the concept Concept and the concept Soluble in Water.

I shall use capital letters alone to stand for concept variables: the concept X, the concept Y. I shall use corresponding small letters for the corresponding thing variables, so that xs will be things falling under the concept X, ys will be things falling under the concept Y. In some passages I shall for various reasons use the alternative mode of expression "concept of belief", "concept of a concept", "concept of being soluble in water". There are situations where the capital letter notation becomes unusable, e.g., one can hardly say that contemporary and mediaeval scientists have different concepts Heat; one must say that they have different concepts of heat. In other places the "concept of" notation seems preferable for stylistic reasons.

In quotations from other writers I preserve their notations unchanged, e.g., "the concept red", "the concept 'red'", etc.

I should add that this Note is intended only for initial purposes of clarification. I do not mean to suggest that these questions of notation can be entirely separated from certain philosophical problems about concepts.

INTRODUCTION

The purpose of this dissertation is to provide answers to the questions "What is a concept?" and "What is it to have a concept?". In this introductory section I want to sketch some general difficulties surrounding the questions.

First, it may be said that "What is ...?" questions in general are otiose, that it is just unhelpful in philosophy to ask "What is an intention?" "What is knowledge?" etc. Philosophers who take this view usually do so because they are opposed to what they call "essentialism". Popper, for instance writes "I reject all what-is questions: questions about what a thing is, what is its essence or its true nature." And his reason for saying this is that "we must give up the view, characteristic of essentialism, that in every single thing there is an essence, an inherent nature or principle (such as the spirit of wine in wine), which necessarily causes it to be what it is, and thus to act as it does." (Popper 1972, p. 195). It seems unreasonable, however, simply to write off all what-is questions because one rejects the philosophical theory of essentialism. Everyday questions such as "What is an armadillo?", "What are sunspots?" make perfectly good sense, and can often be answered to the satisfaction of the questioner. It is only if such questions are taken in a particular way - as demands for an 'essence' or for a set of necessary and sufficient conditions for a things to be of a certain kind - that they can become otiose. However, even when taken in such ways many what-is questions are answerable, e.g., the inherent principle which causes liquids such as wine and whiskey to make people drunk is easily identifiable as ethyl alcohol, and the

necessary and sufficient condition for a person to be a grandfather is that he is male, and that at least one of his children has at least one child. No doubt there are what-is questions that must be rejected, but then specific reasons need to be given for rejecting them - reasons that depend on peculiarities of the specific questions.

This brings us to the second sort of objection that may be raised against the questions "What is a concept?" and "What is it to have a concept?", and particularly against the former. The objection can be outlined as follows: Where an analytic philosopher is dealing with a concept such as Intention or Knowledge he often gives an account of that concept in terms of its relations to other concepts. This procedure may take the form of an 'analysis' of the concept in question. That is, the philosopher may try to state what the 'components' of the concept are, as when a philosopher maintains that Knowledge is a composite concept formed from the concepts Justification, Truth and Belief. On the other hand, a philosopher may not want to attempt an 'analysis' in this sense, for he may hold that Belief, say, is no more 'basic' than Knowledge, and so cannot be regarded as a component of Knowledge. In such a case the philosopher may still want to give an account of the concept he is interested in by stating the relations other than 'inclusion' which the concept has to other concepts. Thus he may still want to say that it is necessarily true that the concept Knowledge involves the concepts Belief, Truth and Justification without wanting to say that the latter concepts are more basic than the former. He may indeed hold that while it is true that the concept Knowledge involves the concepts Belief, Truth and Justification, it is also true that each of these concepts involves the concept Knowledge. Such a

philosopher would hold that these four concepts must be grasped together if they are to be grasped at all, that these concepts form a 'network' such that none of the concepts belonging to the network can be possessed in independence of possessing the others.

Now it is not my aim at present to clarify what philosophers mean when they speak of 'conceptual networks', 'conceptual analysis', and so on. An adequate understanding of such notions presupposes some degree of clarity about what concepts are and what it is to have a concept. And it is this that presents the problem. When a philosopher is presented with the task of elucidating, say, the concept Knowledge, he takes for granted that such an elucidation will proceed in a certain way, e.g. by analysis into components or by relating the concept to other concepts. In short, when proceeding to the task of elucidating a concept he assumes that he knows what it is to elucidate a concept. The question of what conceptual elucidation is doesn't come into the question of how, precisely, the concept Knowledge is to be elucidated; the former question must have been answered at least provisionally or implicitly, before we can proceed to the latter. But in the case of the concept Concept the situation is different. An understanding of what it is to elucidate a concept can hardly be prior to an understanding of what a concept is, so that an understanding of what we are doing when we engage in elucidating the concept Concept cannot be separated from the understanding which the elucidation is to provide us with. Neurath somewhere compares the process of explicating concepts with that of repairing a ship while it is at sea, but in the case of the concept Concept the analogous picture would be that of using an instrument in order to effect repairs to that instrument. Put less metaphorically, the point is that

if we are to elucidate the concept Concept we cannot have a full understanding of what we are doing until we have done it. (A similar situation arises when a philosopher attempts to understand understanding, and in a few other parallel cases). Still, perhaps to realize that there must be a curious initial fogginess surrounding the question "What is a concept?" is to take the first step towards dispelling the fog.

If we take it that there is such an activity as elucidating a concept, the question arises of what sort of activity it is. At least two distinct approaches are available here. The first approach assumes that to elucidate a concept X is to show how certain words and phrases connected with having the concept are used. For instance, if we wish to elucidate the concept Knowledge we should enquire as to the conditions under which it is correct to say that someone has knowledge of something, or knows something. We will therefore look at the use of expressions such as "knows how to...", "knows that...", "knows him", etc. However, as is well known, there are difficulties with this procedure. It works well where people agree that 'it makes sense' to say that ps are qs, that 'it doesn't make sense' to say that ps are rs, or not ts; and so on. For instance, it makes sense to say that (some) adjectives are of colour, or that (all) adjectives are words, but not that (any) adjectives are coloured. What can be said, what must be said and what cannot be said intelligibly, show us in this case certain things about the concept Adjective. However, in the case of philosophical concepts or concepts that have developed at least in part in the context of philosophical speculation, the situation is usually more problematic. In the case of the concept Concept it is often just not clear 'what we should say'. For instance, should we speak of inventing concepts, wielding concepts,

constructing concepts; should we speak of links between concepts and boundaries of concepts; should we speak of two people having different concepts of the same thing? Prior to a detailed investigation of what concepts are, and what it is to have a concept it seems that we must admit that we don't know what we should say; as a matter of fact some people do make use of various locutions involving the word "concept" which others refuse to make use of.

A different, and perhaps complementary approach to the question "What is a concept?" is to ask not how 'we' use the term "concept", but what concepts have been taken to be by people who have devoted considerable thought to issues that involve an understanding of what concepts are. Two groups of people who often find it necessary to give some explanation of what they mean by "concept" are, of course, philosophers and psychologists. Philosophers, in this century especially, have been very much concerned with what they call "conceptual analysis", and psychologists, especially those interested in cognition, have devoted considerable energy to the investigation of what they call "concept acquisition". Members of both these groups have from time to time tried to make clear just what they understand by the term "concept", and by considering their accounts we may be able to uncover something like a consensus of opinion on how the term is to be used. This is a possibility that I shall explore in Chapter 1.

The general plan of the dissertation is as follows. In Chapter 1 I review a number of statements by philosophers and psychologists concerning what concepts are or what it is to have a concept. Two important and very different accounts can be distinguished, one of which makes concepts into capacities of people to do various things, while the

other makes concepts into something objective which can exist independently of people having concepts. Contemporary writers gravitate strongly towards one or other form of the capacity account, and I discuss this account in the following chapters, with one reservation. That is, I discuss in these chapters the view that to have a concept is to have certain capacities. Whether this view commits one to the view that concepts are capacities is a question I leave aside until Chapter 6. Chapter 2 deals with capacities in general; chapter 3 deals with the concept Recognition, since one important view is that to have a concept is to have a recognitional capacity; Chapter 4 deals with the concept Correct Judgement, since the view that to have a concept is to have a recognitional capacity turns out to be closely linked with the view that having a concept is a matter of being able to make correct judgements of a particular sort; Chapter 5 discusses the view that to have a concept is to have a certain linguistic capacity. Having made out a case for the view that to have a concept is to have a certain sort of capacity, I discuss in Chapter 6 the question of whether it follows that concepts are capacities. I argue that it does not follow, and then explore the consequences of this conclusion for the question of what concepts are.

CHAPTER ONE

SOME VIEWS ON THE NATURE OF CONCEPTS

1.1 Some philosophers' views

The importance of the notion Concept in recent analytic philosophy can hardly be denied. Even a casual glance through philosophical books and articles of the last half-century reveals an enormous amount of work devoted to the 'analysis', 'explanation' or 'exploration' of concepts such as Intention, Mind, Belief, Knowledge, and so on. Often, indeed, philosophers have suggested that 'conceptual analysis', as distinct from empirical investigation, is the task and aim of philosophy in general.

Bound up with these investigations of individual concepts there have been many references to 'conceptual connections', 'conceptual schemes' and 'conceptual frameworks'. Many philosophers have held that concepts do not exist in isolation, but that they are in some sense 'connected' with one another in a manner which is often referred to as a 'conceptual framework' or 'conceptual network'. Many philosophers would claim that being related to other concepts is essential to the nature of any concept. Ryle (1962) writes that "the philosophical examination of a concept like that, say, of Time or Probability or Voluntariness, can never be the examination of that concept by itself, but only the examination of it vis-a-vis its numerous neighbour concepts, and these vis-a-vis their innumerable neighbours too."

(p. 444 in Ryle (1971)). White (1967, p. 8) remarks that "concepts are in this respect like mathematical points: they have no qualities other than their relation to other concepts." As it stands such a view is rather mysterious, since if the only qualities of a concept C are its

relations to other concepts D, E, F, . . . and if the only qualities of D are its relations to C, E, F, G, . . . , and so on, then it is hard to see how any light at all is shed on what a concept is. White hastens to modify his position (p. 8) by saying "Concepts are, of course, in some respects unlike mathematical points. The uses of concepts are related not only to each other but also to the material in the world about which we use them." If it is asked "But what is a concept?" the only answer we can extract from White's account is that a concept is a "way of thinking" (p. 9); that using a particular concept is a matter of "thinking about something in a particular way" (p. 7). In similar vein Harré (1966, p. 2) states that concepts are "the vehicles of thought", but without an account of thought and an explanation of what is meant by "vehicle" in this context, such a definition gives us little understanding of what concepts are supposed to be.

If we turn to the writings of H. H. Price we find something much more definite:

Whatever else a concept may be, to possess a concept is at least to have the capacity of recognizing instances if and when they are observed. (Price, 1953, p. 35)

To have a concept or abstract idea is to have the capacity of recognizing instances and of distinguishing them from non-instances, or at any rate that is part of what it is. (Ibid., p. 114)

A concept is a recognitional capacity which manifests itself also in thinking in absence. (Ibid., p. 277)

In Chapter 3 I shall discuss Price's view that recognitional capacities are essential to the having of concepts. Here we may note that Price only claims that being able to recognize fs is a necessary condition of having the concept F. He does not think of it as a sufficient condition, since he wants to say that anyone who has the

concept F also has the capacity to think about fs when they are not present:

A man who has the concept Dog ('knows what a dog is like' is the ordinary phrase) has the capacity for doing two things which a man who lacks it cannot do. When he is actually perceiving a dog he can recognize that it is one, and he can think about dogs when he is not perceiving any dog. These two sorts of occurrence, recognizing instances in presence and thinking of them in absence are the two fundamental ways in which a concept (or the fact that one possesses it) are manifested (Ibid., pp. 276-277).

The double criterion* here poses some problems: can there be a case where someone has the capacity to recognize dogs when he comes across them, but is unable to think of them when they are absent? It seems quite possible to imagine a mental disorder in which this happens, and in such a case it is not clear whether Price would allow that the person had the concept Dog. The converse case, where someone can think about dogs but is totally unable to recognize them when they appear is harder to imagine. This suggests perhaps that the recognitional criterion is the fundamental one, and it seems that this is indeed Price's view.

The view that concepts are basically capacities for recognition is often found in psychological writings on concepts. I shall consider some of these accounts shortly, but meanwhile there are other philosophical views to be mentioned. It may be said that the ability to judge whether or not things are fs is as good a criterion for possessing the concept F as is the capacity for recognizing fs. Bennett (1966, p. 73) writes that

* I discuss the double criterion further in Chapter 3.

To have a concept is to be able to cope with--i.e. generally sort out true from false among--judgements of some functional kind. I say that a class of judgements are of a 'functional kind' if and only if they do the same sort of work, have a similarity of function: the class of judgements which treat of humans forms a functional kind and determines the concept of humanity.

Such a view of concepts immediately raises the question of what judgements are. In particular one wants to know whether a judgement is something that can only be made by a language user, or whether animals can be said to judge. Bennett's own view is that non-language-users such as animals can make certain kinds of judgement, and thus have certain kinds of concept, but that other kinds of judgement, and hence other kinds of concept are barred from them. Other philosophers, such as Rhees have placed more emphasis on language: according to Rhees (1954) "If I have the concept [of red] I know how the word 'red' is used"; throughout Rhees' writings one finds an enormous emphasis placed on the importance of language in our understanding of the world. The same emphasis can be found in the writings of those philosophers, psychologists and linguists who have been influenced by the Whorfian hypothesis which asserts the dependence of all conceptual systems on language and alleges that "all observers are not led by the same physical evidence to the same picture of the universe unless their linguistic backgrounds are similar, or can in some way be calibrated." (Whorf 1956, p. 214).

Another philosopher who links the possession of concepts with the ability to make judgements, but also with linguistic ability, is Geach, in his book Mental Acts (1957). Geach maintains that concepts are capacities "presupposed to and exercised in judgements" (p. 11).

He wishes to say that "the concept every knife is exercised in any judgement to the effect that every knife is. . . . , and is in fact the ability to frame judgements of this form." (p. 53) One should add, perhaps, that Geach initially puts the matter in a semi-stipulative way: "I shall apply the old term 'concepts' to these special capacities."

(p. 12) But he then goes on to object to psychologists saying that animals have concepts, so it is not purely a matter of stipulation.

Geach holds that a sufficient, but not a necessary, condition for having the concept X is that one has mastered the intelligent use of a word for xs in some language. He allows that a man struck with aphasia may retain certain concepts, but he does "not think that we shall go far wrong if we concentrate henceforward on concepts exercised linguistically." (p. 13).

Philosophers have thus linked the notion Concept with the notions Thought, Recognition, Judgement and Language. This does not yet exhaust the positions that have been held. One important view links Concept with Knowledge. (Cf. Price's parenthetical remark quoted at the top of p. 10). Hamlyn (1967, pp. 37 & 39) writes that to have a concept of something is to know the principle in accordance with which things are said to be of the relevant kind to have a concept of X is to know what it is for something to be an X". In a later article he links Concept with both Knowledge and Understanding: "To have a concept is to have a certain form of understanding; to have a concept of X is to understand or know what it is for something to be an X". (Hamlyn, 1971, p. 6)

Then there is the currently popular view that links Concept with Rule. On occasion concepts have been identified with rules, e.g. by

E. Calhoun (1959): "The concept in general is the rule that a given object be taken for what it is". There are, however, obvious difficulties in any simple identification of concepts with rules. For instance, rules can be kept or broken, but I do not think that anyone would want to say that concepts can be correct or broken. A more plausible suggestion is that a person has a concept if and only if he is capable of following a classificatory rule, but here too there are difficulties. For instance, it is not at all obvious that someone who can follow the classificatory rule "If a thing is round, red and made of metal it should be classified as an X" thereby has the concept Red Round Metal Thing, since it is not obvious that there is any such concept. Conversely, if a person has the concept Red it is not at all obvious that he is following any rule in classifying things as red. A rule for classifying things as red would have to be of the form "If it has characteristics X, Y, Z it should be classified as red", but it seems that there are no characteristics X, Y, Z such that, if things have them, they count as red.

Some of the above accounts are accounts of what it is to have a concept rather than of what concepts are. However, Price and Geach say explicitly that concepts are capacities, and the other accounts are not incompatible with this interpretation. Thus we have here a set of positions according to which concepts are capacities for recognition, capacities for sorting out true judgements from false, capacities to use words correctly, and capacities to follow rules. (In addition, if we accept the Rylean point that knowing is a matter of having certain capacities, then the view that concepts are knowledge can be regarded as a view of the same sort). Accounts which make concepts out to be

capacities may be classified as 'subjective' accounts, in the sense that in these accounts a concept is something that can exist only where a subject exists, who, as we say, 'has the concept'. Subjective accounts of concepts are not incompatible with the view that many people can have the same concept - they interpret this as meaning that all the people concerned have similar capacities to recognize, judge, use language, or whatever one prefers to take as the most characteristic manifestation of having concepts. (Cf. Geach, 1957, p. 14).

In contrast to these subjective views of concepts there are accounts which make concepts objective and independent of the human beings possessing them. Thus for Frege a concept is what is signified by a predicate, and contrasts with an object, which is signified by a name. (See Frege, 1892). This way of using the word "concept" seems to be so different from the way in which the other philosophers so far mentioned use it, that it may be best to regard the concept Concept which Frege employs as simply a different concept from that with which we are concerned. (It may be noted that Frege explicitly mentions that the word "concept"--"Begriff"--is used in various ways by various writers, and that he himself has chosen to use it in a particular restricted way). An understanding of "concept" similar to that of Frege can be found in the early philosophical writings of Bertrand Russell: for Russell concepts are universals of which we are aware (Russell, 1912, p. 52), and a universal is taken to be something existing independently of human beings.

1.2 Concepts and mental images

Most of the above mentioned accounts of what concepts are take concepts to be not only subjective, but dispositional in nature, but

just as there are objective accounts, so too there are subjective non-dispositional accounts. In particular there are the traditional accounts of concepts or 'ideas' which assert that concepts are a kind of mental image, or something similar to a mental image. Thurstone (1924), for instance, writes:

"Stop now and notice what really constitutes your concept "house". If you dwell on the concept you will discover that, unless you specially guard against it, you will be imagining a particular house; you are perhaps directly in front of it, or you are in it right now. You even 'see' the furniture and rugs--in this that was a concept when you started. I grant that this particularized imagery may serve as a concept, as a carrier of the fewer attributes that characterize the universal. But the fact remains that this minutely specified imagery is not the concept". (p. 62)

"The concept is similar to the idea except that it contains fewer attributes." (p. 62)

"If on the other hand my representation of 'newspaper' is simply the visual or articulatory imagery of the wordthen the imaginal representation should be spoken of as a concept." (p. 52)

Another psychologist, P. McKellar, has quite recently endorsed Thurstone's view of concepts. McKellar (1957) writes:

"As Thurstone remarks: 'it requires inhibition of no mean order to retain the concept as such'. It is, for example, a feat of no mean order to remain conscious of the abstract idea of 'red' without allowing this to concretize into some specific red object." (p. 188)

Recent philosophical support for the view that concepts are mental images or something similar is not easy to find, but one might mention

Price's view in a paper written a couple of years before the book from which I have already quoted. Price writes:

"A visual image of a dog is not, of course, an instance of the concept Dog, but it is much nearer to being so than the word 'dog' is. It is in many ways what an actual instance of the concept would be."
(Price, 1951/2, p. 155)

It is perhaps worth noting that if someone says that concepts are a kind of mental image, he may have either of two distinct positions in mind: one is the view that by "concept" we mean something like "mental image"; the other is that although "concept" means, say, "capacity to recognize", mental images are the means by which human beings recognize things. The difference between the two views could be characterized by saying that according to the first view concepts are logically identical with mental images, whereas according to the second view concepts are logically identical with certain capacities, and only contingently identical with mental images. (As an example of the principle that every conceivable position is held at some time by someone, we may note that Nørreklit (1973) holds that concepts are contingently identical with certain capacities. This view is discussed briefly by Borst (1975).)

It must be admitted that accounts of concepts in terms of mental images are not popular in contemporary philosophy. However, before dismissing such accounts we should at least run through the objections that can be raised against such accounts, in order to see why they must be rejected.

The standard mental image account of concepts may be taken to say roughly that having the concept X is a matter of having the capacity to recognize whether things are xs or not, and that that is a matter of

having in one's mind a sort of generic image of xs, so that when a putative x appears one can check on whether the thing appearing resembles the mental image, and hence determine whether or not the thing is an x.. For example, it might be held that having the capacity to recognize the colour turquoise when one sees it involves having in one's mind an idea or image of turquoise, with which one compares the colours one sees, rather as one might compare them with a colour sample.* On this view, recognizing the colour turquoise is a matter of finding that one's mental image is of the same colour as the thing perceived, and having the concept Turquoise is a matter of having the image stored in one's mind.

The objections to such a mental image account of concepts can be listed as follows:

(1) Berkeley's criticism: One cannot have an idea of a triangle (where "idea" means anything like "mental picture") which is an abstract idea of a triangle, i.e. not specifically right-angled, isosceles, scalene, etc., but simply triangular. A mental picture of a triangle, like a physical picture or an after-image, must be a picture of a triangle, i.e. a triangle of a definite shape. As Berkeley adds in the second edition of The Principles of Human Understanding this does not mean that one cannot "consider a figure merely as triangular; without attending to the particular qualities of the angles, or relation of the sides. So far he may abstract. But this will never prove that he can frame an abstract, general, inconsistent idea of a triangle."

*Cf. Wittgenstein (1958, p. 4).

In other words, there can be no picture in the mind or elsewhere which is equally a picture of a right-angled triangle and of a non-right-angled triangle; what is true is that the word "triangle" applies equally to any triangle, but that fact is quite independent of the existence of mental images. It is interesting to note that as distinguished a psychologist as Titchener claimed he could frame "Locke's picture, the triangle that is no triangle and all triangles at the same time. It is a flashy thing, come and gone from moment to moment: it hints at two or three red angles, with the red lines deepening into black, seen on a dark green ground. It is not there long enough for me to say whether the angles join to form the complete figure, or even whether all three of the necessary angles are given. Nevertheless it means triangle..." (Titchener, 1909, quoted in Nuttall, 1967).

With regard to this I think that all one can say is that having mental images of this sort has nothing to do with having concepts. One does not need to deny that, for Titchener, the concept Triangle was associated with a striking mental image, but surely such an image is peculiar to Titchener. Having such an image is not what is meant by having the concept Triangle; nor is there any reason to think that having this image enabled Titchener to recognize triangles, make judgments about triangles or in other ways manifest his possession of the concept Triangle. Indeed, one suspects that vivid mental imagery of this sort would be a hindrance rather than a help in doing, say, geometry.

(2) The 'psychological' criticism. Berkeley's criticism of 'abstract ideas' was that they cannot, logically, exist. But Titchener's claim that they do exist leads us to a different sort of criticism:

That is, it seems to be a contingent empirical question whether people do or do not have mental images associated with their conceptual abilities, and this is so whether we understand conceptual abilities to be basically linguistic, or to involve capacities for recognition, etc.

Experimental work has in fact been done in this area, but the results are rather inconclusive. Words often do conjure up vague 'generic images' as in the case of Watt's 'observers' who reported the images which appeared in connection with the words

"Grain: fleeting image of a rye or wheat field--the species is not clear."

"Hide: Image of an animal torso thickly covered with hair (very unclear). To what animal it belonged I do not know." (Quoted in Humphrey 1951).

Whatever we make of such reports, the point is that whether people have generic images associated with their conceptual abilities is a matter for psychologists to determine. It may or may not be true that anyone who has the concept X also has stored in his mind a generic image of xs, but whether by "concept" we mean "recognitional capacity" or "ability to use a word correctly" or "ability to judge", etc., there is no necessity for there to be a mental image associated with each concept. It only seems that there is such a necessity if we think that nothing but the having of mental images could explain the fact that people can, e.g., recognize things. But in fact mental images can not function in this explanatory capacity, for the reason now to be discussed.

(3) The 'regress' criticism. The possession of the idea of xs is supposed to enable a person to recognize xs when he comes across them,

and for this reason might be identified with having the concept X. The difficulty, however, is that one must first be able to recognize his idea as an idea of xs. If he doesn't already know that the idea is an idea of xs then he can't be said to know that the objects he picks out by means of this idea are xs. So any account of recognitional capacities in terms of ideas will inevitably lead to the need for ideas of ideas by means of which the ideas can be recognized, and so into an infinite regress. But then one can never get started in recognizing anything. On the other hand, if the regress is stopped at the stage of ideas we are left with an exact analogue of our original problem: how is it that we can recognize these ideas for what they are?

(4) The 'family resemblance' criticism. If we consider a class of things of the same kind and subtract from each any quality or characteristic not shared by all the others, it is not at all obvious that we shall be left with a common quality. It is surely possible to have a concept K such that things count as ks if they have most of the characteristics of A, B, C, D, E. Thus something with characteristics A, C, D, E will be a k; so will something with characteristics A, B, D, E; or B, C, D, E; or A, B, C, E; or A, B, C, D. However, these things of kind K have no common characteristic in virtue of which they are all ks. Whether such concepts are common or not remains to be seen, but they are at least possible concepts; and of any such concept it cannot be said that to have it is to have an idea (a mental picture) in one's mind.

(5) The 'blanketing' criticism: The view that concepts are ideas in the mind gets what plausibility it has from consideration of a special group of concepts, i.e., 'perceptual concepts' such as Horse,

Man, Red, and then generalizes the conclusion (that these things are recognized by means of general ideas) to all concepts. But even a superficial consideration of other concepts suggests that there are no ideas associated with the concepts of negation, disjunction, truth, etc. (Or if words like 'or' do conjure up images or feelings, these feelings differ from person to person. Geach (1957, p. 23) says that 'or' suggests to him a threat, Russell (1940, p. 79) says it corresponds to a state of hesitation.) Similarly with mathematical notions--we do not have distinct ideas corresponding to the arithmetical concepts 1247 and 1248, nor to the geometrical concepts of polygons with these numbers of sides. Logical and mathematical concepts are very hard to fit into any account of concepts which requires there to be a general idea corresponding to each concept, but they are not the only awkward cases. What mental pictures correspond to the concepts Right, Left, Cousin, Debt? Surely any pictures that float up in connection with these words are going to be largely idiosyncratic. And if this is so, are we going to say that people with different mental pictures have different concepts, even though there is no difference in how they understand the words?

Perhaps enough has now been said about the view that concepts are a kind of mental image. It seems that by the term "concept" we do not mean "mental image", though what we do mean is still obscure. To have a concept may be to have the capacity to do various things, but mental images can only come into an account of concepts as that in virtue of which one has the capacities in question. Yet when we consider the matter it seems that mental images are not involved in the having of concepts even in this contingent respect. Some people, in special circumstances, do have vivid mental images on hearing the word "triangle",

but others do not. And even those who do have the images on occasion surely do not have them when they are trying to recognize something. Vivid mental imagery would interfere with recognition rather than enable it to take place.

In this section and the previous one I have classified accounts of concepts according to whether they take concepts to be subjective or objective, and I have divided the subjective accounts into the dispositional and the non-dispositional. I do not mean to suggest that all accounts of the nature of concepts can be fitted into such a simple scheme. For example Ryle's position, to which I shall refer later (p. 162) is that one cannot properly speak of concepts as existing at all:

'x is a concept' and 'y is a judgement' are themselves systematically misleading expressions....I think it can be shown that it is not true in any natural sense that 'there are concepts'... (Ryle, 1931/2, p. 139)

Our forefathers at one time, talked... of the concepts or ideas corresponding to expressions. This was in many ways a very convenient idiom, and one which in most situations we would do well to retain. It had the drawback, though, that it encouraged people to start Platonic or Lockean hares about the status or provenance of these concepts or ideas. (Ryle, 1953, p. 305)

Finally, it should be noted that there exist other philosophical accounts of concepts in other philosophical traditions that can hardly be discussed without drawing on a considerable background understanding of the tradition in question. For example there are discussions about the nature of concepts in the Thomist tradition (see, e.g., Peifer (1952) and Weinberg (1970)), and in the Idealist tradition (see, e.g., Moore (1899)).

1.3 Some psychologists' views

It would be beyond my competence to attempt to give a full summary of recent psychological investigations of 'concept formation'. I shall instead simply mention a few prominent landmarks in this area.

I have already referred to the investigations of psychologists such as Titchener and Watt, in which concepts or abstract ideas were investigated by asking the subject to attend to his mental imagery when presented with certain words. This sort of investigation seems to have been totally abandoned with the rise of behaviourist psychology and the corresponding diffusion of a suspicious attitude towards introspective investigations of any kind. In the new schools of behaviouristically orientated psychology the earliest investigation of concept formation is that of Hull (1920). Hull presented his subjects with series of Chinese ideograms, such that each series contained a common element which was to be associated with a nonsense syllable. After a suitable number of presentations Hull's subjects were able to identify ideograms containing a particular element by their 'name', although they were not necessarily able to say in what respect ideograms with that name were similar. Hull regarded the acquisition of such abilities to discriminate as instances of concept formation, and this sort of view has been shared by many other psychologists. For Skinner, for example, learning a concept is a matter of acquiring a disposition to respond selectively, this ability being acquired through one's responses to certain aspects of one's environment being 'reinforced', while one's responses to other aspects of one's environment are 'extinguished'. (Skinner 1945)

Experiments of the Hullian type have one very misleading characteristic. They are designed around the assumption that a person's

ability to identify things of a particular kind must rest on some immediately observable characteristic of the things in question. But a moment's thought shows that in the case of many concepts this is not the case. Many concepts are such that whether a thing falls under them depends at least in part on that thing's function (consider Table, Screwdriver, Kidney, Brake) or on its past history or cause (Hybrid, Footprint, Stab-wound), or on what will happen if certain things are done to it (Soluble, Maleable, etc.), or on its relationship to other things (Father, Basement, Boundary), and so on.

We may note here that many psychologists take this problem seriously and do not insist that things falling under the same concept must look the same or have 'primary stimulus equivalence'. What is crucial, according to many psychologists is that things falling under a given concept elicit similar responses. Proponents of this view include people such as Osgood (1957) and Miller and Dollard (1941).

In a review of psychological work on concept formation Kendler (1961, p. 447) suggests that concept learning should be defined as the "acquisition or utilization, or both, of a common response to dissimilar stimuli" and this definition would appear to cover fairly well the use of the term in academic psychology up till about 1960. Since then, however, many psychologists have wanted to revise or at least qualify this sort of definition. I shall consider briefly some views of Hunt (1962) which may give an idea of how the use of the term "concept" has been modified.

Hunt objects to the idea that a person must be able to respond overtly if he is to count as having a concept. He regards possessing a concept as requiring only the ability to distinguish situations in

which the response is appropriate. "Concept learning and use refers only to the identification step" (p. 2) and not to the actual responding. But Hunt then confuses the situation by speaking of "identifying responses". He suggests that Kendler's definition should be reworded to read "acquiring or utilizing or both a common identifying response to dissimilar stimuli". Hunt goes on to say

If we think of a name as a response, such acts as learning to call particular animals 'dogs' will be classified as concept learning. This seems appropriate. We certainly wish to include the learning of the use of names as an example of concept learning. There are other types of behaviour, however, which fit the modified definition and may not be the sort of thing we mean intuitively, when we speak of concept learning. Suppose a psychologist trains a rat to jump towards circles and away from triangles. Do we wish to say that the rat learns the concept of triangularity? Or do we wish to distinguish between two classes of behaviour, discrimination and concept learning, under the same rubric of 'common response to dissimilar stimuli'? The author feels that the distinction is important, and wishes to make it. But it must be made in a precise manner. To do so, three further restrictions will be placed on the general classification situation. (Ibid., pp. 2-3)

The first restriction which Hunt imposes is the severe one that the subject must be able to teach a human being to make the identifying response without using examples. In other words the subject must be able to explain, in some language, the classificatory principle involved. This of course rules out animals as possessors of concepts, but Hunt believes that it allows in suitable machines (p. 3).

The second restriction is also a severe one, and as we shall see later, almost certainly untenable. It reads: "The rule to be learned must be one that can be applied to any appropriate stimulus regardless of the context in which the stimulus appears." (Ibid., p. 7) In defence of this Hunt says "Since concept learning refers to the learning of

what a thing in general should be, it seems reasonable that we should demand that conceptual classification be based only on information contained in the object to be categorized." (Ibid., p. 6) This seems a backward step, since it rules out many perfectly satisfactory concepts such as Cousin or Servant (where the principle of classification depends on the relationship the person has to other people), Fossil or Hybrid (where the principle of classification depends on the origin of the thing), Can Opener or Key (where the principle of classification depends on the function of the thing), or any concept which is such that the principle of classification is not "based on information contained in the object to be classified."

Hunt's third restriction is that once a stimulus is completely described it should be uniquely classifiable (ibid., p. 7), but his reasons for saying this are connected with a technical distinction he makes between 'perception' and 'conception' which hardly concerns us here.

After giving his definition and the restrictions to be placed on it, Hunt goes on to say "All forms of behaviour in which the use of a name is learned will be included under the rubric 'concept learning'. In fact, for a brief definition of our topic we can use the phrase 'learning the use of names'". Then on page 8 he says "concepts are essentially definitions in symbolic logic". In chapter 2 (p. 13) Hunt says "We feel intuitively that concepts are things used in thoughts". They are also rules: "The concept of 'dog' is a rule by which we decide, from the description of an object, whether or not it can be called a dog. Such a decision rule may be expressed in a series of questions about the description of the object, for example 'does it

bark?' " (Ibid., p. 29) "The concept is a classification rule by which the appropriateness of applying a name may be determined." (Ibid., p. 30).

Turning from Hunt's book to another definition of "concept" given by a psychologist, we find in J. B. Carroll's Language and Thought (1964) that concepts are "internal representations of classes or categories of experience" and that "a child who can correctly recognize instances of a particular concept and distinguish them from non-instances thereby demonstrates his acquisition of the concept." (p. 81). This sort of account is common amongst cognitive psychologists. Compare for example Rosenstein's (1961) remarks in a review of the literature on cognition in deaf children:

A concept is a mental state or process which means or refers to more than one object or experience, or to one object in relation to others... The term concept does not refer to a word or a group of words, but represents an internal cognitive system, for which a word may be a label.

This idea of a concept as an internal representation of a class of things, or as a mental state which 'means' a group of things is full of difficulties; however I do not propose to deal with them here. Instead I would like to draw attention to another remark by Carroll which raises a slightly more manageable issue. Carroll writes that "A concept can be arbitrarily constructed by combining other concepts: 'All Colorado spruce trees between three and five feet in height situated on U.S. farms of 100 acres or more'." On the whole, psychologists seem quite happy to accept such arbitrary constructions as concepts, as witness many of their experimental designs, but I think many people would be uneasy about this. One is very strongly inclined to say that there is no such concept as Carroll's Colorado spruce tree 'concept', even

though one is quite prepared to say that its 'components' are concepts, that Tree is a concept, that Spruce Tree is a concept and that Colorado Spruce Tree is a concept. Any adequate account of concepts should explain what the difficulty is here; I shall discuss the matter in Chapter 3.

1.4 Concepts and 'rag-bags'

After this survey of some of the many ways in which philosophers and psychologists have used the term "concept", one may be left with the feeling that it is nonsense to speak of the concept Concept. It may seem that there are a number of different concepts here, interconnected in various ways, but with no common thread running through them and no obvious way of arranging them so that certain of the uses of the term are 'central' and others 'derivative'. "Concept, it may appear, is not so much a 'family resemblance' term as a 'rag-bag' term. This point of view has been expressed more or less forcibly by several recent writers. For example, Toulmin (1969) writes:

Philosophers raise questions about 'the concept good' or 'the concept number', or even 'the concept red'; they embark upon 'conceptual analysis', expound 'conceptual truths', study 'conceptual systems and/or frameworks', detect 'conceptual necessities' and 'conceptual impossibilities'; and so on. Yet how precisely such terms as 'concept' and 'conceptual' are to be understood is rarely explained and frequently obscure. By now, in fact, the words have become a kind of catch-all, corresponding to the 'ideas' and 'notions' of eighteenth-century epistemology. (pp. 75-76).

Bennett writes of his explanation of "concept" quoted above (p. 12):

My rough guide to the use of 'concept' in Kant and in philosophy generally could be improved in all sorts of ways; but not in such a way as to present 'concept' as a precise technical term, for it is in fact an imprecise

technical term whose utility depends on its very imprecision. (Bennett 1966, p. 75)

Heath, in the Encyclopedia of Philosophy (1967) writes that:

Concept is one of the oldest terms in the philosophical vocabulary, and one of the most equivocal. Though a frequent source of confusions and controversy, it remains useful, precisely because of its ambiguity, as a sort of passkey through the labyrinths represented by the theory of meaning, the theory of thinking and the theory of being.

Aaron, in the revised second edition of his book Universals (1967) writes:

The term 'concept' is used in a wide variety of senses both in daily life and in philosophical reflection. Today it is almost as much of a rag-bag as was the term 'idea' in the eighteenth century. (p. 188)

Such views are understandable when one considers the multifarious ways in which the term "concept" has been used by psychologists and philosophers. However, there is also something deeply puzzling about the conclusion that "concept" is a 'rag-bag' term. How can it be both a rag-bag and of central importance in philosophy? How can the ambiguity of the term allow it to function as a 'passkey'? And what does "passkey" really mean here? The imprecision of the term "concept" to which Bennett refers is perhaps not so disturbing, but the ambiguity to which Heath refers is surely intolerable even in an imprecise technical term.

Yet, having said this, it seems to me unnecessarily pessimistic simply to give up and dismiss the term "concept" as a "catchall" or a "rag-bag". The point is this: If one goes through philosophical and psychological writings and lists all the ways in which the term "concept" has been used, one inevitably ends up with a rag-bag. For then concepts will be objective entities and subjective entities, mental images and

capacities to use words, capacities for recognition, definitions, names, rules, vehicles of thought, discriminatory responses and so on. However, to lump all these uses of the word "concept" together indiscriminately is absurd. We need first to separate 'objective' from 'subjective' accounts. On the 'objective' side we have the views of Frege and Russell, for example. On the 'subjective' side we have numerous accounts of concepts as mental images, capacities for recognition, capacities for correct judgement, linguistic capacities, vehicles of thought, etc. From here on I shall leave aside the 'objective views' since, as I said above, they appear to be accounts of a different concept rather than different accounts of the concept that concerns us.

If objection is taken to this procedure of taking concepts to be 'subjective', I would point out that whether or not concepts are subjective, having a concept certainly is, and it is with this latter notion that I shall be mainly concerned until we reach Chapter 6.

Among the subjective views some are just too vague to be of much help to us--e.g. the view that concepts are the 'vehicles of thought'. Such characterizations should be borne in mind when trying to frame a satisfactory account of concepts, but by themselves they are not of very much value to us. Other subjective views such as the view that concepts are mental images must be rejected for specific reasons, as we saw above. Thus within the general 'subjective' approach the field can be narrowed to possibilities such as the following: Concepts are said to be capacities for recognition, abilities to use words correctly, capacities for correct judgement, capacities to follow rules, dispositions to make discriminatory responses. The striking fact about these remaining candidates, is, of course, that they are all broadly dispositional

characterizations. Concepts are held to be capacities or dispositions of people to do various things, or, if we are more cautious, the having of concepts is a matter of having certain capacities to do things.

In Chapter 2 I shall investigate dispositions, capacities and abilities in general, and then we may turn to the question of what a person who has a concept has a capacity for. The various alternatives are not necessarily exclusive, or even independent. It might be argued that the making of judgements, for instance, presupposes the mastery of the use of the relevant words in some language, or it might be argued that to be able to recognize things is just to be able to make certain discriminatory responses.

In Chapter 3 I shall consider the notion of recognition in some detail; in Chapter 4 I shall examine the notion of judgement; and in Chapter 5 I shall discuss the thesis that to have a concept is to have certain linguistic capacities. I hope to show that the choice between the various capacities that might be suggested as equivalent to 'having concepts' is not arbitrary, but at the same time I would like to show why some people have wanted to insist that having concepts is a matter of having recognitionnal capacities, while others have wanted to say that it is a matter of having linguistic capacities or judgemental capacities.

Before starting, however, on my discussion of 'capacities', I want to discuss several points that can reasonably be discussed without committing oneself to any very explicit view about the nature of concepts. In these next two sections I shall ask the reader to understand the term "concept" in the way he would understand it if he were reading a philosophical work that was not concerned with analysing the concept

Concept.

1.5 Degrees of having a concept

It is often tempting to think that a person either has a concept or he doesn't. This view is encouraged by considering examples such as the concept Triangle. We think that if someone knows that a triangle is a plane closed figure with three sides then he has the concept, otherwise he doesn't. But this simple view of the matter is dispelled when we think about the actual process of acquiring the concept. There are many stages a child goes through in acquiring his concepts and there is no single point at which one can say "Up till now he didn't have the concept, but now he does." One's understanding of a concept can be deepened by experience, one can have only a slight grasp of a concept or an adequate grasp. Having concepts seems to involve having understanding, and understanding is a matter of degree. A child may be able to select triangular shapes from a pile of different shapes, but be unable to choose into which of a set of differently shaped holes a triangular shape will fit. Here we might say that the child has some grasp of the concept Triangle, but certainly it is not an adequate one. One might even want to say that no one who is not familiar with Euclidean geometry has an adequate grasp of the concept Triangle, or to go even further one might require that he understand (adequately?) the philosophy of geometry. Where one draws the line between an 'adequate' grasp and an 'inadequate' grasp seems then to depend on one's interests and purposes.

That conceptual understanding is a matter of degree is linked with the fact that concepts do not exist singly but in 'conceptual systems'. The understanding of what it is to be a triangle cannot be had quite independently of understanding what lines and angles are; the understanding

of the concept Electron cannot be had quite independently of an understanding of the concepts Atom, Electric Charge, Mass, Orbit, etc. The understanding of one concept requires the understanding of others, and the more one understands of how one concept is linked with others the deeper can be said to be one's grasp of that concept. Thus the fact that having a concept is a matter of degree and the fact that concepts exist as elements in conceptual frameworks are closely connected facts. Just what is to be understood by the phrase "conceptual framework", however, is a matter whose detailed discussion I must leave until my last chapter.

1.6 Concepts and their criteria

Concepts are often said to have criteria of application, or simply 'criteria'. However, these terms have been used in many different ways by different writers, and it will be necessary for me to specify how I shall be using them.

In the early part of the Blue Book Wittgenstein introduces the term "criterion" in the following way:

If medical science calls angina an inflammation caused by a particular bacillus, and we ask in a particular case 'why do you say this man has got angina?' then the answer 'I have found the bacillus so-and-so in his blood' gives us the criterion, or what we may call the defining criterion of angina. (p. 25)

Here "criterion" is introduced as an equivalent to "logically necessary and sufficient condition", and this is a common way in which the term is used in experimental psychology. In the Blue Book Wittgenstein contrasts "criterion" with "symptom":

I call 'symptom' a phenomenon of which experience has taught us that it coincides, in some way or other, with the phenomenon which is our defining criterion (p. 25)

Thus there may be symptoms of angina which are found to be present wherever there is angina, and wherever there are these symptoms it may turn out that there is angina. Thus one can speak of empirically necessary and/or sufficient conditions for the occurrence of angina, but these are distinct from the criteria for the application of the concept Angina. The criteria for the concept are conditions which determine the meaning of the word "angina", or which determine what counts as suffering from angina.

One complication here, which Wittgenstein notes, is that in practice there often occur shifts between the conditions that are counted as 'criteria' and the conditions that are counted as 'symptoms'. Thus while the more obvious physical and chemical properties of a substance used to function as the criteria for being that substance, in modern chemistry one is more inclined to say that the criteria lie in the material's atomic structure. If a material with the more obvious observable properties of gold turned up, yet it did not, according to more sophisticated tests, have the atomic structure of gold, no modern chemist would simply say "That's gold too", but would want to carry out some very extensive investigations in order to find out why something that is not gold has so many properties in common with gold. Still, so long as we bear in mind that shifts between 'criteria' and 'symptoms' are common, we can say that the criteria of a concept F are the characteristics of a thing which make it count as an f, whereas those characteristics of the thing which may change while the thing is still counted as an f, are no part of the criteria for the concept.

The distinction between criterial characteristics and non-criterial characteristics is important, but there is now an equally important point

to be made, namely, that the idea of a criterion as either a logically necessary or logically sufficient condition (or both) is inadequate in understanding the nature of most concepts. We can give logically necessary and/or sufficient conditions for the application of geometrical concepts such as Triangle or genealogical concepts such as Cousin, but these are rather exceptional cases. If we try to give necessary and/or sufficient conditions for the application of, say, the concepts Table, or Soluble, we find the task impossible; but at the same time we are aware that something like a criterion-symptom distinction is still valid. For some characteristics of things are irrelevant to whether they are tables, whereas other characteristics are not. For example, it seems irrelevant whether a thing is made of steel or of wood, but it seems very relevant what the thing is used for, or what it was designed to be used for. In fact, one is tempted to say that a necessary and sufficient condition for being a table can be given in terms of function - some dictionaries for instance suggest that a table is "an article of furniture with a flat top about three feet off the ground, on which things may be placed for convenience or display." What colour the thing is or what it is made of does not matter; and the flat top and specified height matter only in so far as they allow the thing to fulfil its function. (E.g. one can have a special table with deep grooves to hold pens, etc., and a giant's table could be of any height). What makes a piece of furniture count as a table is what it is used for, or what it was designed to be used for, and this, if anything, is to be regarded as the criterion for being a table. However, if we insist on the function of a table being necessary and sufficient for a piece of furniture being a table we run into the problem that in special

circumstances a piece of furniture that is undoubtedly a table does not have the normal function of a table. The thing might, e.g., be on show in a table manufacturer's window as an example of the excellent tables made in that factory. It might even have been designed with the express aim of showing what can be done in the way of table manufacture by expert craftsmen. No philosophical sleight of hand can, in such a case, prove that this table has the normal function of a table. This table has a quite different function.

Now what are we to say about such a case? We can hardly go back and say that this thing is the same shape as, or is constructed of the same materials as, things which are tables according to the functional criterion. For we have seen that such characteristics are just not criterial for tables. It is undoubtedly the function that is the criterion, but in this special case the table does not satisfy the criterion for being a table. It follows that if we are to use the term "criterion" in connection with concepts such as Table, and if we are to avoid paradox, we must modify the meaning of the term "criterion"; but we must modify it in such a way that we preserve the distinction between 'criteria' and 'symptoms'. The way to carry out the modification is to note that the cases where a thing is of kind F yet does not satisfy those conditions which we should want to call 'criterial' for the concept F, are abnormal cases. They are abnormal not in the sense of being merely unusual, but in the sense that they require a special account in order to make them intelligible. Thus one cannot intelligibly say "Here is a piece of furniture which was neither designed for, nor is used for the purposes of a table--yet it is a table, and there is no more to be said." The natural reply to this would be "What do you mean?"

How can it count as a table? Do you mean....?" The point is that given a suitable background context or 'story', the assertion that a thing without the defining function of a table nevertheless is a table, makes sense, but without the background story it does not. Having a certain function can thus be regarded as the criterion for being a table in the sense that having the function determines what normally is to count as a table. Having a particular function is linked with the meaning of "table" but it is not a logically necessary or sufficient condition for the application of the term "table".

What I have said about the concept Table applies in the case of a great many other concepts. Very few scientific concepts, for example, are such that one can give necessary and sufficient conditions for their application which take no account of abnormal cases. I shall discuss dispositional concepts such as Soluble in my next chapter, but we may note here that a substance counts as soluble only if in normal circumstances it dissolves when placed in the solvent. We don't refuse to classify a substance as soluble because it fails to dissolve in abnormal conditions--such as the solvent being saturated or too cold, or the solute being covered with a microscopically thin layer of insoluble oxide. "Dissolving when placed in the solvent" is the criterion for the application of the concept Soluble, but it is not a necessary condition.* Nor, I think, is it a sufficient condition, for if the substance vanished when placed in the solvent on one occasion because of some intense radiation interacting with both solute and solvent,

*Compare Aune (1967), Chapter 5.

this would not be sufficient to allow us to say that the substance had dissolved. I discuss this sort of case more fully in the next chapter, but I think it is clear already that there is no straightforward logically sufficient condition for counting a substance as soluble. On the other hand if someone says "This substance is soluble, but it didn't disappear when placed in water, and that is all there is to say" or if he says "This substance disappeared when placed in water, but it is not soluble, and that is all there is to say" we hardly understand him. We can only understand by searching for a possible explanation of why the stuff didn't disappear when it was, after all, soluble, or why it did disappear when it was, after all, insoluble.

To recap and elaborate a little, there are two important features of the concept Criterion, as I shall be understanding it. The first is that the criteria for the application of the concept F are to be distinguished from characteristics of fs which are irrelevant to whether a thing counts as an f. Hence the criteria for the application of a concept are not necessarily to be identified with the characteristics of a thing which enable one to recognize it as an f. For one can recognize an f through noticing that all gs are fs and that this thing is a g. Here being a g is an empirically sufficient condition ('symptom') of being an f, but being a g is not a criterion for the application of the concept F. On the other hand, the characteristics by which one recognizes an f may be those characteristics that are criterial for fs.

The second important feature of the concept Criterion, as I shall understand it, is that it is not to be identified with Logically Necessary and/or Sufficient Condition. Corresponding to the notion Logically Sufficient Condition I shall employ the notion Positive

Criterion. A characteristic or set of characteristics Q will be a positive criterion for the concept C if and only if it is true by definition that things which are qs are, unless there is some special reason to the contrary, cs. Or we can say: A characteristic Q is a positive criterion for the concept C if and only if judging qs not to be cs is unintelligible without a special context. Corresponding to the notion Logically Necessary Condition I shall employ the notion Negative Criterion. A characteristic or set of characteristics Q will be a negative criterion for the concept C if and only if it is true by definition that things which are cs are, unless there is some special reason to the contrary, qs. Or, a characteristic Q is a negative criterion for the concept C if and only if judging cs not to be qs is unintelligible without a special context. In addition, of course, one may consider combined positive and negative criteria corresponding to combined necessary and sufficient conditions.

A brief way of characterizing the notions of positive and negative criteria would be to say that a positive criterion for a concept C is a set of characteristics which creates a presumption that anything with these characteristics falls under the concept C, and that a negative criterion for a concept C is a set of characteristics which creates a presumption that anything which does not have those characteristics does not fall under the concept C. But this way of putting the matter can easily slide into the idea that, if Q is a criterion of C, then it follows that if a thing has Q there is necessarily good evidence that it is C. Indeed, this account of criteria in terms of necessarily good evidence has been very popular in recent philosophical writing (See Malcolm 1954, Shoemaker 1963, Lycan 1971, Hacker 1972). However, it

will not do, since if we consider an abnormal case where a thing has characteristic Q but is not a c, we can't say that someone who notes that the thing has Q has necessarily good evidence, or indeed any evidence at all, that the thing is a c. Whether he has good evidence, whether he is justified, in thinking that a particular thing is a c depends on what he knows about the circumstances or context. He may or may not have good evidence that the thing is a c, but it makes no sense to say that he has necessarily good evidence. Evidence is not the sort of thing that can be necessarily good, for whether or not evidence is good depends entirely on the circumstances. What we can say is that, necessarily, if someone sees that a thing has characteristic Q, then he will in normal circumstances have good evidence that it is a c. The distinction to be made here is that between saying "It is necessarily true that Q is normally good evidence for C" and saying "It is normally true that Q is necessarily good evidence for C". The second of these sentences seems to make no sense but the first can be used to express the fact that Q is criterial for C.

There is one further point that needs to be discussed before we have an adequate account of 'criteria'. One often encounters cases where things which have many or most of a set of characteristics b, c, d, e, f, g count as ks (and it may be that some of these characteristics are more relevant for being a k than others). Here we must say that having many or most of the characteristics constitutes a necessary and sufficient condition for being a k. As an example of this consider the pre-scientific (or perhaps early scientific) concept of a metal. A metal in this sense, is something which has many or most of the following characteristics: It is a material substance which is hard, shiny,

malleable, ductile, tasteless, odourless. (Some of these characteristics are more important than others. Being shiny, at least when polished, is highly characteristic of metals, whereas one would not cavil much about a metal that was not ductile). It follows that having many or most of these characteristics is necessary and sufficient for being a metal, and the characteristics themselves might naturally be referred to as the criteria for the concept Metal.

However, the situation just described is only a special case of that where something normally counts as a k if and only if it has many or most of the characteristics b, c, d, e and f. For example something normally counts as a bird if it is a winged, feathered vertebrate animal. However, the 'normally' qualification is essential. The concept of a bird is applied against a backcloth of assumptions, such as the assumption that vertebrate animals have a head, legs, a certain sort of internal constitution, that they reproduce in certain ways, and so on. If the normal assumptions cannot be made then something that satisfies the criteria for being a bird may not be a bird, and things which are birds may not satisfy the criteria for being birds. For instance, if we encounter on some distant planet creatures like birds which have the internal constitution of an insect and which reproduce by fission we will probably not want to count them as birds. Conversely, a bird that has been plucked is still a bird, and so is a bird that has lost its wings through some unfortunate accident.

Cases of this last sort are in fact very common--that is, cases where there is a presupposed backcloth of normal circumstances, and a whole set of characteristics which are more or less relevant in deciding whether things are of a certain kind, or fall under a certain concept.

Other cases, where there is no need to refer to normal circumstances, and/or where the need for the presence or absence of characteristics is rigidly specifiable can be regarded as special cases of the general case just described.

Having tried to make clear these preliminary points about concepts, I turn now to the main task of elucidating what concepts are. We saw that there is good reason to think that having concepts is a matter of having certain capacities and it is to the clarification of this notion of a capacity that I devote the next Chapter.

CHAPTER TWO

CAPACITIES

2.1 Dispositions, necessity and laws

There has been considerable discussion of dispositions by philosophers of science, part of which can be briefly summarized as follows. (For more details see e.g., Pap (1958), Sellars (1958) and Rozeboom (1973)). Consider the disposition 'soluble in water'. The obvious account to give of this phrase is that "d is soluble in water" means that if d is placed in water then d will dissolve. But what sort of if...then connection is involved here? It is not a logical entailment, but if we take it to be material implication we encounter the difficulty that, according to this definition of "soluble in water", anything that is not placed in water is soluble in water.

To avoid this difficulty we can try extending the original formula

$$Sd = (t) (Wdt \supset Ddt)$$

(where "S" stands for "soluble", "W" for "placed in water", "D" for "dissolves", and t ranges over time) in the following way: When it is said that something is soluble even though it is not placed in water, it seems that what is being said is that this thing is physically or chemically similar to things which have dissolved in water. Or, to say that d is soluble is to say (a) that all things of a certain kind k dissolve when placed in water and (b) that d is of kind k. Thus we could write

$$Sd = (\exists k) (kd.(y)(t)(ky.Wyt \supset Dyt))$$

but this suffers from much the same defect as the original formula. It would mean that something is soluble whenever nothing of its kind has ever been placed in water.

To avoid the vacuous case we could add that on at least some occasion something of kind k has been placed in water:

$$Sd = (\exists k) [kd. (\exists z)(\exists t)(kz.Wzt).(y)(t)(ky.Wyt \supset Dyt)].$$

This formulation says in effect that "d is soluble in water" is equivalent to "d is of a kind which regularly dissolves in water". But while we can get rid of the vacuous case in this way the formula seems inadequate as an explication of "x is soluble in water". For it is surely possible that something is soluble even though nothing of that kind has ever been placed in water. Further, being soluble isn't simply a matter of a substance always happening to dissolve, but rather a matter of its being of a kind such that it must dissolve. This, and the persistent trouble with the vacuous cases suggests that we need to abandon the formulation in terms of material implication and introduce a 'stronger' sort of implication. If we allow for the moment that there can be such a 'stronger' implication, we can write

$$Sd = (\exists k) (kd.(y)(t)(ky.Wyt \rightarrow Dyt))$$

where the ' \rightarrow ' indicates that we are dealing with a lawlike statement that cannot be vacuously satisfied. Even so, this formulation is not quite satisfactory: we do not want to be restricted to substances that invariably dissolve when placed in water. In certain circumstances a soluble substance may not dissolve and we need to allow for such cases. (E.g. the particles of the substance may have a thin coating of insoluble oxide, there may be so much of the substance already in solution that the solution is saturated, the water may be too cold, and

so on). In stating the law we need to say that circumstances are such that none of these contingencies arise, but it is unsatisfactory to write

$$S_d = (\exists k)(k d.(y)(t)(Cyt.kyt.Wyt \rightarrow Dyt))$$

where C stands for specified circumstances in which the substance does not dissolve, because any such list of circumstances is open-ended: The term C should function in a negative way to rule out circumstances where the law $(y)(t)(kyt.Wyt \rightarrow Dyt)$ doesn't hold, but any list of such circumstances will probably never be complete. All we can safely say is that there are circumstances (and these are the normal circumstances) in which the law holds.* Thus our definition of "d is soluble" becomes

$$S_d = (\exists k)(\exists c)(k d.(y)(t)(cyt.kyt.Wyt \rightarrow Dyt)).$$

Just what the property k is, is a matter for scientific investigation, but one would expect it to be a structural property of the soluble material.

It seems then that a fairly satisfactory account of dispositions can be given provided that we have a satisfactory account of laws involving an 'if....then' connection that is 'stronger' than material implication. Universal generalizations that are not laws can be expressed quite satisfactorily by the use of material implication (see the first formula on page 44), so that our problem is that of explaining

*That is, given certain unspecified circumstances the law will hold. Note that these circumstances may never in fact obtain, and that for this reason care is necessary in the reading of " $(\exists k)(\exists c)(\quad)$ " and similar formulae.

what exactly is the difference between a law and a generalization that just happens to be true, or what exactly is involved in the necessity of laws as contrasted with mere generalizations. This has been something of a standard problem in the philosophy of science for a long time, and a moderately successful answer has been given by writers such as Braithwaite (1953) and Nagel (1961). I shall not repeat their analyses, however, but give a rather different account* which can be compared with theirs.

Let us consider a very simple case of causal necessity: two cog-wheels are engaged in a clockwork mechanism so that, as we would ordinarily say, the turning of one wheel causes the other to turn. We can see that the wheels are turning, and, in a quite ordinary sense of "see" we can see that the turning of one wheel causes the other to turn. Indeed, we can see that if the first wheel turns then the second must turn.

Now a Humean philosopher would say that there is no necessity here: it is conceivable that when the first wheel is turned it will simply pass through the other like a ghost. And in this he is clearly right--there is no logical necessity involved. Logically, the first wheel could turn without moving the second. However, one still wants to say that the turning of the second wheel is physically necessary, and the question arises of what is meant by this phrase. I think that what is meant can be expressed (rather vaguely) by saying: given that the physical world is the way it is and that the cog-wheels are ordinary physical objects the second wheel must (logically) turn. If it doesn't

*Cf. Toulmin (1949), Hamlyn (1961).

we can't be dealing with ordinary cog-wheels--that concept can't be applied in this situation (perhaps the wheels are images formed by a lens; perhaps they are made of some very flexible material; and so on). The necessity in the second wheel's turning comes from the hidden presumption that the wheels are ordinary cog-wheels. Take away this presupposition, and the necessity vanishes. Thus the causal necessity is a conditional necessity--it is conditional on the applicability of certain concepts in the situation, in this case the concept of a cog-wheel.

This I think throws some light on both Humean and rationalist accounts of causality. The rationalist says that the fact that the second wheel turns follows as a matter of necessity, given that the first wheel turns. In this he is right, granted the presupposition that the wheels are ordinary cog-wheels. The Humean says that there is no necessary connection, the second wheel may not turn; whether it does or not is a matter that can only be settled by observation. And he is right too, because the presupposition that the wheels are ordinary cog-wheels may not be true. The fact that the second wheel turns does not follow logically from the fact that the first wheel turns, but it does follow logically from that together with the fact that the wheels are the sort of things they are.

That was an elementary example of physical necessity. --I want now to discuss several cases where a specific scientific law is involved, in order to illustrate how the same sort of account applies in the case of laws. Consider first Ohm's law. We say that increasing the potential difference across a copper wire causes an increase in the current flowing through it. (Suppose, to avoid the charge that many electrical

measuring instruments presuppose the truth of Ohm's Law, that the p.d. is determined by an electrostatic voltmeter, and the current by a tangent galvanometer). The rationalist will say that the increase in current follows from the increase in p.d.; the Humean will say it doesn't follow at all since it is quite conceivable that an increase in p.d. will not be followed by any increase in current. Now clearly the Humean is right about there being no logical necessity involved, but I think the rationalist is right too, granted that we are dealing with an ordinary copper wire. Copper is known to have a structure with many free electrons--there is evidence for this from other sources, e.g. the relation between thermal and electrical conductivities--and it is quite easy to deduce that materials with this kind of structure will exhibit Ohm's regularity, i.e., the regularity involved in Ohm's Law. If a piece of copper did not conduct according to Ohm's regularity it would mean that our normal concept of metallic structure did not apply in this case, that this was no ordinary copper. In other words, the wire being what it is, it is necessary that if the p.d. increases the current will increase. This can appropriately be called a physical necessity--it is relative to the wire being a certain kind of physical thing.

The necessity involved in Ohm's law can therefore be explained as follows. If a material has a certain structure (involving the presence of free electrons) it follows (logically) that the p.d. across it is proportional to the current through it. Conversely, Ohm's regularity (logically) must hold of any material which has that structure, and whether it has the structure can be determined without having to determine first whether Ohm's regularity holds of it. In ordinary circumstances we will be assured that a material has the structure in

question if it has the obvious physical characteristics of a metal, e.g. copper; and, granted that, we can say that increasing the p.d. must increase the current. It is in this sense that I mean that Ohm's regularity is necessary and hence counts as a law: it is necessary if a material has a particular sort of structure. If Ohm's regularity does not hold in a particular sort of case (e.g. in the case of germanium crystals) then materials of that kind cannot have that sort of structure. Conversely, if a material has that sort of structure Ohm's regularity must hold of that material.

A similar account should be possible of laws such as Snell's law of refraction. To say that Snell's relation is a law is to say not only that it does hold, but that it must hold. Here again I would regard this as a conditional "must"--Snell's law must hold if transparent materials have the structure they do have, if they are what they are. Of course the details of 'what they are' are complex, and all sorts of experimental and theoretical results have a bearing on the question. In this respect my account of physical necessity is not very different from that given by Nagel and Braithwaite and other neo-Humeans. Both they and I hold that whether a general statement counts as a law depends on whether there are reasons for accepting the statement other than confirming instances of the general statement,--on whether the statement fits into a larger theoretical framework that supports it. But I would emphasise the importance of concepts in this connection: it is because the truth of certain general statements is necessary for the correct application of certain concepts, that it makes sense to say that these general statements are laws. In the case of Ohm's law and Snell's law the concepts in question are structural concepts, but this is not always

the case, as examples such as the law of conservation of energy show. For this law must hold if we are to operate successfully with classical mechanical concepts generally. The concept Potential Energy, for instance, would have no application if the law did not hold, and without this concept the whole framework of classical mechanics would collapse. The holding of regularities such as that expressed by the law of conservation of energy is necessary to the successful application not of a single concept but of a whole conceptual network. Regularities of this sort are often dignified by the name "Principle", rather than merely "Law", which is an indication of the fact that they cannot be abandoned without a thoroughgoing conceptual upheaval.

Let us now consider two examples of laws that might be said to be counterexamples to my thesis. One such is Balmer's law concerning the distribution of spectral lines. Balmer's law, at the time it was discovered, was not embedded in any theoretical scheme. It was a highly and precisely confirmed regularity which was nevertheless counted as a law. My reply to this objection is that people often regard a well-confirmed regularity as a law because they believe it is a law, i.e. they believe that the statement of the law is necessarily true, though they do not know that it is or why it is. When a well-confirmed regularity appears, it is, I think, very plausible to assume that the reason the regularity always holds is that in the nature of things it must hold. In the case of Balmer's law we now know enough about 'the nature of things' to see why it must hold--in particular, atoms could not be constituted in the way they are without the law holding.

Similar remarks apply in the case of Boyle's law. Boyle's law started as a well-confirmed regularity, and it is hard not to believe

that such regularities are laws. Strictly speaking, however, I think it could be said that Boyle's law was not known to be a law prior to the elaboration of the kinetic theory of gases. (Nevertheless, I would have no real quarrel with those who regarded the law as a law prior to the kinetic theory, since I consider that they had very good reasons--though not the best reasons--for supposing that they were dealing with a law. Why else should the regularity exist if not because it is somehow in the nature of gases to behave in that way?)

2.2 Dispositions and their bases

Given the above account of natural necessity we can eliminate the ' \rightarrow ' from our account of solubility, so long as we are prepared to make use of a suitable notion of entailment. The logic of entailment is still far from having been satisfactorily worked out, but this is hardly relevant for my purposes here. I shall use the symbol ' $<$ ' for entailment, on the understanding that this is mere shorthand for the unexplicated intuitive notion. (In general, in what follows, I shall use symbolic notation only the interests of brevity or perspicacity). If we do employ ' $<$ ' for 'entails' we can replace the definition

$$Sd = (\exists k)(\exists c)(kd.(y)(t)(\text{cyt.kyt.Wyt} \rightarrow \text{Dyt}))$$

by

$$Sd = (\exists k)(\exists c)(kd.(y)(t)[ky < (\text{cyt.Wyt} \supset \text{Dyt})]),$$

which says that "d is soluble in water" is equivalent to saying that there is a kind of material k and conditions c such that: d is of kind k, and if anything is of kind k it follows that, given conditions c, it dissolves when placed in water. Note that k has now become a theoretical term. Things are of kind k if and only if they are of a kind which

according to a true theory, is such that if things of that kind are placed in water, then normally they will dissolve. (A qualification that needs to be made is that k must designate some genuine 'natural kind'; we cannot allow as k any arbitrary construction, since one could then define an artificial property $kx = (\text{Cyt.Wyt} \supset \text{Dyt})$ so that anything not placed in water would be a k , and hence be soluble in water. It is, however, easier to see that such arbitrary constructions must be disallowed than to specify qualifications that will exclude them).

In modern physics or chemistry there is of course more than one k , so far as solubility in water is concerned. It can be deduced that salt will dissolve in water from the theoretical information that salt molecules are constituted by ionic bonds, and that water has a high dielectric constant, but this account does not apply in the case of solutes with a covalent structure. Covalent bonding is less well understood than ionic bonding, but it is certain that the reasons for sugar dissolving in water are different from the reasons for salt dissolving in water. And when we consider cases of solubility in non-aqueous solvents such as benzene the account may be different again*. If we stick to considering water as the solvent, however, we can say that the base of salt's solubility is one type of molecular structure and that the base of sugar's solubility is a different type of molecular structure.

The question arises of whether there must be a 'base' associated with every disposition. Isn't it conceivable that there should be no k

*Consider also that we speak of zinc dissolving in sulphuric acid, where dissolving involves a chemical change.

associated with the solubility of a material? Certainly it is true that no structure need ever have been discovered for any material, and that it might have turned out, to the best of our knowledge, that matter was structureless. In that case we might still want to speak of solubility, but I think at the same time we might insist that there was something (k) about soluble substances that enabled them to dissolve, although the nature of k would be mysterious. Methodologically at least, it would be better to assume that there was a k since to assume the opposite would simply put an end to research into the question of what it is about soluble materials that makes them soluble.

Whether we are entitled to take a stronger position here, and say that there must be a base, I am not sure. Consider the situation where people are convinced that matter is structureless. In spite of this they have to accept that different materials behave in different ways; that iron dissolves in sulphuric acid while gold does not, etc. Empirical regularities of this sort could be well established, and where one finds such regularities, I have suggested, one is inclined to suppose that they are manifestations of laws--that the regularities always hold because they must hold. But then the question arises of why they must hold, and by hypothesis the most natural sort of explanation (i.e. in terms of internal structure) has been eliminated. Perhaps we can imagine some other explanation, but let us suppose that there just is none available, and that people have come to accept that there are no bases for solubility dispositions. In such a case, I suggest, they cannot regard it as a law that iron dissolves in sulphuric acid. For they have no justification for supposing that the fact that iron does dissolve is backed up by a law which ensures that it must dissolve.

Such people would be in the genuinely Humean position of being able to give no justification for their belief that the next specimen of iron will dissolve. But if one does not believe that iron must (normally) dissolve when placed in sulphuric acid, can one assert that iron is soluble in sulphuric acid? I suggest that the answer to this question is No, on the grounds that the idea of a law of some sort lies at the back of our concept of solubility; certainly we have not been able to explain the concept without referring to a law.

2.3 Capacities and dispositions

In The Concept of Mind (1949) Ryle points out that the terms "capacity" on the one hand, and "tendency" or "liability" on the other, are used in rather different ways. This is true, and there are plenty of more subtle distinctions to be made. In the general area of dispositional concepts we find not only capacities, tendencies and liabilities, but also abilities, capabilities and competences; habits, inclinations, predispositions, proclivities, pronenesses and propensities; biases, likelihoods, potencies, powers and susceptibilities. The precise way in which these terms differ in meaning can most easily be ascertained by consulting works such as Webster's Dictionary of Synonyms, but I shall only distinguish three main families among these dispositional concepts. First, the 'liability family': X has a liability to Y (is subject to Y-ing, is susceptible to Y-ing, etc.) if (roughly) there are circumstances c such that if c obtain then X Y's. Secondly there is the 'tendency family': X has a tendency (propensity, proneness) to Y if (roughly) there are circumstances d such that unless d obtain, X Y's. Thus iron is liable to rust; hot air tends to rise. Grenades are liable

to explode; the roots of plants tend to grow downwards. The differences between these two families of concepts are unimportant for my discussion --both of these types of concept can be fitted into the general scheme for dispositional concepts:

$$Sd = (\exists k)(\exists c) (kd.(y)(t)(ky < (cyt.Wyt \supset Dyt)))$$

The only difference is that in the case of a tendency concept we will replace Wyt by $\sim Wyt$, so that d will have the property S if and only if it has a property k such that if anything has k then, under normal conditions, if it is not Wd it will D.

Capacities are not so easy to deal with. One sort of situation where we say "X has the capacity to Y" is where there is no reason to believe that it is impossible for X to Y. This explication gives "X has the capacity to Y" the same meaning as "It is possible for X to Y". Thus if we are trying to light a fire we may ask whether green ash branches are capable of burning, i.e. whether such branches can burn, and here we are specially concerned to know whether there is a law to the effect that if a match is applied the branches won't burn. If we are sure that there is not such a law defeating our aim we say that it is possible for the branches to burn, or that they are capable of burning.

However, I do not think that it is merely in this sense of "capacity" that we say that someone has, say, the capacity to identify fs when he comes across them. To say that someone can identify fs would usually be to say that given suitable circumstances he will identify fs, and not merely that there is no law preventing him from identifying fs in those circumstances. But if we say this there seems to be nothing about the capacity to identify fs which distinguishes it from the

disposition to identify fs, where "disposition" is understood in the way I have explained above. I think that this is largely true: we speak of a capacity here because identifying involves being right, and wherever there is a standard of correctness or success involved we speak of capacities rather than simply of dispositions or liabilities. To say that in circumstances c, X has the capacity to Y seems to be to say that Y is in some sense an end or goal for X, or that we count Y as a success and not-Y as a failure for x. Thus we might ordinarily say that a material had a liability or propensity to burn, but if we are specially concerned to ignite it we are more likely to ask if it is capable of burning, if it can burn. It is simply our interest in the result R that makes us regard the disposition to R when Sd as a capacity of the thing to R when Sd. In the case of identification we are almost inevitably interested in the 'result' since the question of whether someone has the capacity to identify fs is a matter of whether he performs correctly. We have a practical interest in a person's liability to be right about what kind of thing something is, and that is why we speak of the liability as a capacity.

There is, perhaps, another respect in which capacities can be distinguished from dispositions understood in the general way I have described above. That is, a thing is normally understood to have the capacity to Y only if when Xd in circumstances C, something within the thing brings it about that Y. Thus a car has the capacity to do 70 m.p.h. only if when its accelerator is depressed in circumstances

C (C = car on the open highway, engine running, etc.)

its engine brings it about that it does 70. If, to adapt Don Locke's (1973/4) example, pressing the accelerator happens to switch on a giant

magnet several hundred yards away, and, as a result, the car is accelerated to 70 m.p.h., we would not say in virtue of that, that the car had the capacity to do 70. As Locke points out, it is not easy to find a principle that will separate off cases of this sort from cases where we would say the car had the capacity. For in a sense it is something in the car--the ferrous nature of its chassis and engine--which ensures that it reaches 70 when the magnet is switched on. Fortunately for our purposes it is of no great importance where the line is drawn between cases where we would say the car had the capacity and where we would say it didn't have it.

One further point may be made about capacities and abilities: I have been suggesting that "A has the capacity to X" means roughly that A is such that there are circumstances C such that if A is Yd in circumstances C then A will X. However, we can't say that A is able to X if it turns out that it is impossible for A to be Yd, or if circumstances C are impossible to produce. Thus we could in a sense say that a new powerful locomotive can pull a train at 500 m.p.h. if the train is fitted with suitable wheels and allowed to run on a suitable track. However, the locomotive can't in fact pull a train at 500 m.p.h. because it is impossible to manufacture wheels and track with the required characteristics. In cases like this we say "It could be done in theory, but not in practice", the reason being that the theory does not concern itself with the details of what is practically possible. From now on I shall assume, when speaking of the disposition to X when Yd in C, that it is possible for C to obtain, and that it is possible for X to be Yd in C.

2.4 Human abilities and natural powers

The capacities with which we shall be concerned in discussing concepts are capacities possessed by human beings, and possibly by some animals. Now while it is plausible to explain the liability of salt to dissolve when placed in water, or the power of a lighted match to ignite a piece of dry wood, in terms of what will happen in certain circumstances, this sort of account is not quite so plausible in the case of, say, the ability of a person to swim a certain river, or his ability to hit a bull's-eye at 50 yards. For although a person may have the ability to swim the river he may have come to hate swimming so much that in no circumstances would he actually swim. Or he may dislike firearms so much that in no circumstances will he fire a gun. To say that a person has an ability is not to say he will perform the action if certain circumstances obtain, but that he will do it if certain circumstances obtain and he is suitably motivated. However, this does not mean that human abilities cannot be fitted into the analysis of dispositions given above; all it means is that in the case of human abilities we shall often have to include a motivation condition in the circumstances C within which a person will X if Yd. I say "often" rather than "always" because there are some human abilities that do not bring in a motivation condition. One such ability that is relevant for our discussion of concepts is the ability to recognize things of a certain kind. A person has this ability if in suitable circumstances (such as being within visual range of them in good light) he recognises things of this kind when he encounters them. One does not usually have to be specially motivated in order to recognize things, although there are cases where a person will not recognize things as of a certain kind unless he tries

hard, concentrates, looks at them from every angle, etc.

We saw that, as the terms are ordinarily used, a thing M only has the capacity or power or ability to do X if the bringing about of X depends on the nature of M, or on what goes on inside M. One would not naturally say that the car which only does 70 when propelled by a giant magnet has, itself, the ability to do 70. A similar point can be made about human abilities. We would not naturally say that a person has the ability to rise into the air, on the grounds that he does regularly rise into the air when out with the local ballooning club.

A few more points about human abilities: To say that a person P has the ability to X, given that Y obtains in circumstances C, is not to say that P will invariably X when Y obtains in circumstances C, even granted that C includes an adequate motivation condition. P has the ability to shoot the apple off Q's head--he does it almost every night as part of his act--but this is quite compatible with occasional failure. The point here is basically the same as the point that a substance can be soluble even though it doesn't invariably dissolve. The only difference is that we are more likely to be able to say what prevents the substance from dissolving than we are to be able to say what prevented P from shooting the apple off Q's head on particular occasions. And in either case there is the logical possibility that no explanation will ever be found for the failures.

Then there is the point that for P to have the ability to do X, given Y, it is not enough that P regularly Xs, given Y; for the regularity could be accidental. For P to have the ability to X, given Y, it must be the case that the Xing depends in some way on P's present state, his past history or his activity in trying to do X. This point

is connected with the point that material implication will not do as the connective in stating the regularity involved in the disposition.

Material implication is quite adequate for symbolizing accidental regularities, whereas what is required is a statement to the effect that in suitable circumstances and given P's constitution, history, etc., Xing must follow the occurrence of Y. In the case of a human ability, the full details of why X must occur, given Y, are likely to be enormously complex--, probably far more so than in the case of dispositions such as solubility--but this is irrelevant to the analysis. For practical purposes we assume that where a regularity persists over a period of time this can't be just an accident, and that is surely a reasonable assumption.

2.5 Disposition-manifesting event concepts

In this section I want to discuss a particular group of concepts, with a view to avoiding unnecessary confusions later on. Consider again the standard case of solubility. We are inclined to say that sugar is soluble in water on the grounds that it normally dissolves when placed in water, but there is a problem here about what counts as dissolving. It is possible to place a fine insoluble powder in a liquid and for the powder to go into suspension in the liquid without dissolving. It looks as if the powder has dissolved, but chemists want to say that the phenomenon is of a different sort. They want to say this partly because in some cases (suspension) the substance can be retrieved by filtration, whereas in other cases (dissolving) it cannot. Further, we now have some understanding of the physical reasons for the differences in the ways in which various solids interact with various liquids. Only certain sorts of substance will dissolve, only certain sorts of substance will



go into suspension. Given sufficient knowledge of chemical structure and so on we can say that the disappearance of a powder in a liquid is or is not a case of dissolving, and can go on to explain that it is a matter of what sort of substance it is and how it interacts with the liquid. It is only if it is a substance of a particular chemical sort which interacts with the liquid in a particular way that we can say that its disappearance in the liquid is a case of dissolving. Thus "dissolving" is not for the chemist a straightforward event term; it is a term which is only applied when a particular sort of event occurs as a result of, or as a manifestation of, a particular dispositional base. "Disappearing", on the other hand, is a straightforward event term.

Now wherever we have a disposition to X when Yd we can introduce a disposition-manifesting event concept K such that a thing Ks if and only if it Xs as a result of a disposition to X when Yd. Thus if a thing on some occasion Xs when Yd, but has no settled disposition to X when Yd, we will not say it has Kd. Similarly there is the possibility that a thing which has the disposition to X when Yd, on occasion Xs when Yd just by chance, and not as a manifestation of its disposition to X when Yd. In this sort of case, too, we shall not allow that the thing has Kd.

One way in which disposition-manifesting event concepts arise is the following: We notice a regularity of the form "Whenever fs are Yd in circumstances C they X". Here Y and X will normally be straightforward event concepts. We establish that certain things in certain circumstances have the disposition to X when Yd, but on occasion something without this disposition happens to X when Yd. Now we want to distinguish between this sort of Xing and the sort which is a manifestation of a settled disposition to X when Yd, and so we introduce the

disposition-manifesting event concept K. Thus even if we ignore the difference between, e.g., dissolving and going into suspension, we will not want to say that any case of a thing disappearing when placed in a liquid counts as 'dissolving'. If a substance known to be insoluble in water disappears when placed in water, this will not be sufficient for us to say that it has dissolved. "Dissolving" is reserved for things which are known to have the disposition to disappear when placed in a liquid. In the case of other disappearances we should simply call them "disappearances".

Perhaps a different sort of example will help to make the point clearer. Imagine two machines which look like desk calculators. Each has a keyboard with numerical and other arithmetical signs inscribed on the keys. We press the keys marked '5', '+' and '8' in that order, on each machine, with the result that the number '13' lights up in the window of each machine. Now both machines have produced the right answer to the addition $8 + 5 = ?$ but it is not yet clear whether they have both performed the addition of $8 + 5$. Suppose one of the machines is a normal calculator--in its case we are likely to have no hesitation in saying that it performed an addition. But suppose that inside the other machine is a largely random arrangement of components which only occasionally and by chance produces correct results when the keys are pressed. In this case, if the correct answer was produced purely by chance, I do not think that we would say that the machine had added 8 and 5. The reason for this can be expressed by saying that we do not speak of adding unless the machine has a settled disposition to get the answers to arithmetical problems right. Adding is an event concept, but it is a disposition-manifesting event concept: without the disposition

the production of the right answer does not count as adding.

Concepts of this sort are perhaps not very numerous; I mention them because one of the concepts I discuss later, namely Judgement, appears to be a concept of this sort. The special difficulty involved in the explanation of these concepts is that such explanations are liable to seem circular. For example, we are inclined to say that a substance is soluble in water if it is disposed to dissolve in water, but then we realize that we can hardly say that the stuff dissolves unless we can already say that it has the disposition. Or in the case of addition we want to say that a machine has the capacity to add, but then we realize that we can't say it adds unless we can already attribute to it the capacity we are trying to explain. In these cases the thing to do is to define the disposition-manifesting event concept in terms of the disposition, which then itself must be defined in terms of a straightforward event concept; in the cases above the relevant event concepts are Disappearing and Producing the Correct Answer.

In this chapter I have tried to give a general account of what capacities and dispositions are, or, more exactly, what is involved in having capacities and dispositions. The main points relevant to my discussion of concepts in the following chapters can be summarized as follows.

Having a capacity involves having a disposition, in the technical sense of "disposition" that I have been employing. What distinguishes capacities from other dispositions is that in the case of capacities there is some standard of success or correctness involved, so that having the capacity is not just to have the disposition to X when Yd, but to be disposed to get something right, or to be disposed to succeed in doing

something, given the right circumstances. In some cases where we use the term "capacity" the standard of success or correctness may lie in the background, as when we say that something is capable of burning, but it is there nonetheless.

Capacities, then, can be regarded as a species of disposition. A person, thing or substance has a disposition to X when Yd if he or it is such that if Xd he or it must Y. It is something that is involved in the nature of the person, thing or substance which ensures that when Xd he or it Ys, and this 'something' I have referred to as the base of the disposition. What ensures that the car will do 70 is the nature of its engine; what ensures that salt dissolves in water is its ionic structure; and so on. I have taken the connection between base and disposition to be a logical one, such that if a thing has the base it follows logically that it will Y when Xd; thus nothing will count as an adequate description of the base of a substance's solubility unless it follows from that description (together with whatever laws and theories are involved in giving the description) that substances of that sort will disappear when placed in certain liquids. We may simply say that the base of salt's solubility lies in its molecular structure, but this is to say that salt has a structure (perhaps unknown) such that if any substance has that structure it follows that it will dissolve when placed in water.

Turning now to the capacities that are involved in having concepts two questions arise. First, what are such capacities capacities for? Secondly, what are the bases of the capacities, or in virtue of what does a person have the conceptual capacities he does have? I try to answer these questions in Chapters 3 and 4.

CHAPTER THREE

CONCEPTS AND RECOGNITION

3.1 Having concepts as a necessary condition for recognition

I referred in Chapter 1 to H. H. Price's view that to have a concept is at least to have the capacity of recognizing instances if and when they are observed. Price holds that being able to recognize fs is a necessary condition of having the concept F, but he seems doubtful about whether it is a sufficient condition, on the grounds that something else appears to be necessary, i.e. the ability to think about fs when they are absent.

Let us look first at the claim that being able to recognize fs if and when they are observed, is a necessary condition for having the concept F. One objection that naturally comes to mind is that the "if and when they are observed" clause is too strong. It is not contradictory to say that a person has the concept Dog, yet in certain circumstances is unable to recognize a dog as a dog when he observes it. For example, he may observe the dog at a great distance, or through a mist. In general, he may not be in a suitable position to recognize the dog which he observes. Then again, the person may have something wrong with his eyes, he may be dazed or drunk or just not paying enough attention to what he observes. In general, he may not be in a suitable state to recognize the dog which he observes.

In fact I do not think that these points constitute real objections to Price's account. Price doesn't claim that anyone with the concept Dog will recognize dogs when he observes them; he only claims that a person who has the concept will be able to recognize dogs when he observes them.

Now to claim that someone is able to recognize dogs when he observes them need not, according to my account of abilities in the previous chapter, involve any more than claiming that there are circumstances such that if the person is in those circumstances then he will recognize dogs if he observes them. The fact that someone is dazed, for instance, doesn't mean that he has no ability to recognize dogs when he observes them; it means only that he may not recognize a dog so long as he is in that state. In short, failure to recognize a dog when one observes it--whether or not an explanation is available for the failure--is quite compatible with having the ability to recognize dogs when one observes them. (Compare my discussion in the previous Chapter, pp. 44 and 59). Hence it is no objection to Price's account to point out that a person with the concept Dog may on occasion fail to recognize a dog when he observes one.

A real difficulty with his account does arise from the reference to observation in the phrase "if and when they are observed". Two sorts of case are relevant here: first, cases where a person has the concept F but is never able to recognize fs when he observes them, and, secondly, cases where a person has the concept F, but fs are just not the sort of thing that can be observed. A good example of the first sort of case is provided by Urmson (1955/6, p. 261). Most of us have the concept Middle C, but few of us are able to recognize instances of this note when we hear it. Only those with perfect pitch can recognize instances of notes when they observe them; the rest of us have to identify notes by other means, such as comparing the note with a standard note emitted by a tuning fork, or measuring the frequency of the corresponding sound wave, etc. An equally good example would be provided by the concept Cousin. In this case no one can recognize instances when he observes them, since

the criteria for f being a cousin are not observable characteristics of f s.

The second sort of case I referred to, where f s are just not the sort of thing that can be observed, might be illustrated by examples such as Electron, Knowledge, Complex Number. It may be argued, of course, that in a sense one can observe electrons in cloud chambers, and that one can observe knowledge in the way a man handles questions, but I think it is fair to say that such moves involve stretching the notion of observation considerably. One can't observe electrons in the way one can observe dogs, and there are detailed reasons for this. Electrons, in so far as one can speak of their size at all, are too small to be observed with the naked eye, but they are not like red blood cells which can be observed with a microscope or viruses that can be observed with an electron microscope. The nature of electrons is such that they interact in such a way with the means of detecting them that one cannot speak of observing them in the way one can speak of observing macroscopic objects. I do not wish to go further into the question of what things can be said to be observed in which senses of "observe"; I only wish to draw attention to cases where having the concept F can't be said to involve the ability to recognize f s when they are observed, if "observe" means what it means in "he observed an elephant on the bank of the river".

What we have established so far is that being able to recognize instances of a concept through observing them is not always a necessary condition for having the concept. (Whether it is a necessary condition depends on the concept in question--in the case of concepts such as Dog it seems that Price is quite correct in saying that it is a necessary condition). On the other hand I think a good case can be made out for

saying that recognizing through observation that something is of a certain kind is always a sufficient condition for having the relevant concept.

If we start with the presently vague idea that to have the concept F is to know what it is for things to be fs, then it does seem that if one recognizes (or is able to recognize) that a thing is an f through observing it he must have the concept F. For if he did not have the concept, if he did not know what it is for a thing to be an f, how could he recognize that it is an f?

Several things might be said by way of objection to the view that recognizing involves having concepts, and I must deal with them before going on.

(1) It might be said that an animal or a very young child does not know what it is for a thing to be a cup or a chair, yet it may be able to recognize cups and chairs when it comes across them. This is no doubt true, but at the same time one must admit that there is a difference between a child's being able to recognize cups and a child's being able to recognize that things are cups. We say that an infant is able to recognize faces, cups, feeding bottles, etc. as soon as its behaviour suggests that these things are familiar to it, as soon, that is, as the child comes to respond in a predictable way when these things appear, and is no longer either surprised by or indifferent to their appearance. Urmson (1955/6) points out that a baby recognizes its mother long before it recognizes her as his mother, and the same point can be made about kinds of things which the baby recognizes. It is able to recognize human voices, for instance, long before it is able to recognize that certain sounds are human voices. The difference here is not really in the sense of "recognition"; it is a difference in what is recognized. The baby is

able to recognize things, or kinds of thing; the older child is able to recognize that things have a certain identity, or that things are of certain kinds. It seems reasonable to say that it is only the second kind of recognitional ability that involves the possession of concepts. If a child can recognize that things are cups we want to say that he has the concept Cup, but of the baby who can only recognize cups I do not think we want to say that it has the concept Cup. The difference between the two abilities has to do with the fact that if a child can recognize that things are cups he can make judgements about whether or not they are cups, he can be right or wrong in classifying them as cups, whereas if he merely has the ability to recognize cups nothing is implied about his ability to judge, or classify or be right or wrong--he has not yet acquired any standards by which he can make judgements. Thus if we are to say that having a recognitional capacity involves having a concept, we must make it clear that what we mean is that to have the capacity to recognize that (or whether) things are fs involves having the concept F. The other claim, that to have the capacity to recognize fs involves having the concept f, seems indefensible.

(2) A second objection to the view that having recognitional abilities involves having concepts is the following. Suppose it is agreed that a certain set of characteristics m, n,.... is typical of fs and of nothing else, but that having these characteristics is no part of the criteria for a thing being an f. That is, the fact that fs are typically m, n,... has been discovered through experience, and the fact has not, for whatever reason, been incorporated into our understanding of what it is to be an f. Suppose, for example, that fs are a certain kind of sunspot, defined by the precise type of nuclear process which is

going on at that point on the sun's surface. Sunspots of this type astronomers call Q-dipolar sunspots, and they can be identified in ways known only to astronomers. For reasons which remain obscure such sunspots, and only such sunspots, are found to have a certain shape and to fall within a certain range of size. It is not at all clear to astronomers that this must be so; it is just a contingent fact that it is so. Given this situation, an astronomer can easily recognize that a sunspot is a Q-dipolar sunspot simply by looking at it, since he knows that, as a matter of contingent fact, all and only such sunspots have certain visual characteristics. But now it may be said that a layman, too, can recognize that sunspots are Q-dipolar, so long as he has been told by an astronomer that all and only sunspots of a certain size and shape are of this kind. The astronomer can ask the layman to go through piles of photographs of the sun, and to pick out for further study only those which show Q-dipolar spots, and, it will be said, the layman can do this because he can recognize that kind of spot. On the other hand it is surely true that while the layman does perhaps have a concept of a sunspot with a certain size and shape, he does not have the concept Q-Dipolar Sunspot. So, the argument goes, he can recognize instances without having the concept.

Let us look more closely at what is happening in this example. The layman is certainly able to recognize whether a sunspot is of a certain size and shape. He is also able to recognize that a sunspot is of a kind that the astronomers label "Q-dipolar". But that is the limit of his ability. The astronomer has a further ability, i.e. he can tell not only whether a spot is of the sort which astronomers label "Q-dipolar" but whether a spot is Q-dipolar, that is, whether it has certain esoteric

physical characteristics. We may conclude from this that "A is able to recognize whether things are fs" is ambiguous in that it may or may not be replaceable by "A is able to recognize whether things are correctly called 'fs'". If the first statement is replaceable by the second, there is no guarantee that A has the concept F, but if it is not so replaceable, then I think we must concede that A has the concept F. From now on I shall take it for granted that in speaking of the "ability to recognize whether things are fs", we mean this in the strong sense in which the phrase is not translatable into "ability to recognize whether things are correctly called 'fs'".

(3) A third objection to the view that having certain recognitional capacities is sufficient for having certain concepts is one hinted at by Price, i.e., the objection that it is not enough to be able to recognize things in their presence--one must also be able to think of them in their absence. However, it is not at all clear that these two conditions are independent. The criterion for someone thinking about fs must surely involve that he can recognize whether things are fs; for otherwise we would have no reason for saying that it was of fs that he thought. On the other hand, if someone can recognize whether things are fs then it seems that he can also be mistaken about whether things are fs. In such cases he thinks that he recognizes an f although fs are absent. In this sense at least, someone who can 'recognize fs in presence' must be able to 'think of them in absence'. Other cases where one 'thinks about fs in absence', such as imagining fs, or hoping for fs, would need more extended discussion, but I think that in all these cases we will have no grounds for saying that a person can 'think of fs in absence' unless he can 'recognize them in presence'. My reply to this third

objection is then that the 'ability to think in absence' criterion for having a concept is not independent of the 'ability to recognize in presence' criterion, and that there is, therefore, no reason to suppose that the recognitional capacity is not sufficient for having the concept.

3.2 The necessary conditions for recognition

Having eliminated these objections we may assume with more confidence that if a person recognizes that a thing is an *f*, then he has the concept *F*. The next part of my investigation is planned in the following way:

I start from the assumption that having the concept *F* is a necessary condition for recognizing that a thing is an *f*. I then investigate, without reference to the notion of a concept, what the necessary conditions are for recognizing that a thing is an *f*. When all the necessary conditions have been enumerated it should be clear which of them corresponds to the notion of having the concept *F*. Or, of course, it may turn out that some part of one of these necessary conditions, or some conjunction of them, is equivalent to "having the concept". The point is that given (1) a rough understanding of "having the concept"

(2) the fact that having the concept is a necessary condition of recognition, and

(3) a list of the necessary conditions of recognition, it should be possible to identify fairly precisely what is involved in having the concept *F*. At the beginning of such an enterprise there can be no guarantee that it will succeed, since even if a set of necessary and sufficient conditions can be found for recognizing that a thing is an *f*, it may not be clear which of them should be identified with the

vaguely understood notion of having the concept F. On the other hand, it may become quite clear which of the necessary conditions is involved, and in that case the success of the investigation will justify the manner of approach.

My aim, then, is to enumerate the necessary conditions (and hence the sufficient condition) for recognizing that a thing, d, is an f, and in this section I shall discuss one particular sort of case, i.e., visually recognizing that something is of a certain kind. Similar points could be made about recognition by means of the other senses, and later I shall remove the restriction that the cases we consider are cases of recognition by means of the senses.

To take a concrete example: what is involved in visually recognizing that something is a bear? It might be said that two conditions must hold*: (1) If P recognizes that something is a bear then that thing must be a bear. One can't recognize that a tiger is a bear, though in peculiar conditions one might see a tiger as a bear. The other condition, it might be said, is (2) the thing must look like a bear to the recognizer, or the recognizer must see it as a bear. Someone who put forward these two conditions for recognizing that something is a bear might emphasise that recognizing is not a mental event or a state of mind. If the thing is not a bear then you don't recognize that it is a bear whatever your state of mind. On the other hand, it might be said, recognizing includes a mental state or event. When someone recognizes a bear it seems that something happens in or to him. How things look to him changes when he recognizes that the animal is a bear.

*Fleming's (1957) article is an example of such a view.

I want now to consider this account of recognizing. Its first claim, that recognizing that a thing *d* is an *f* involves *d*'s being an *f*, seems uncontroversial. Its second claim, that recognizing that *d* is an *f* involves seeing *d* as an *f*, I want to discuss in detail, and then there will be the final question of whether these two conditions are jointly sufficient for recognizing that *d* is an *f*.

The obvious way of showing that visual recognition involves seeing-as would be to demonstrate that if *P* does not see *d* as an *f*, then *P* does not visually recognize that *d* is an *f*. Consider a case where someone identifies an animal as a bear without seeing it as a bear. For example, the animal is a long way away and is moving in a curious way because it has been injured. It doesn't look like a bear at all, but we know it is because of information that we have received from a reliable source. Try as we may we can't see this shape as a bear, even though we recognize that the animal before us is the bear Klein shot yesterday. In cases of this sort there is recognition, but the element of seeing-as is missing. But, the argument runs, it is in precisely such cases that we can't speak of visual recognition. If we can't see the animal as a bear, if it doesn't look like a bear to us, then we can't be said to recognize visually that it is a bear. It is the removal of the seeing-as element which disqualifies the case as a case of visual recognition; hence, it may be said, seeing-as is a necessary condition of visual recognition.

Now although this argument may seem plausible, there is, I think, a mistake in it. What we must grant is that if something looks unlike an *f* to us, we cannot be said to recognize visually that it is an *f* (though we may realize that it is an *f* or identify it as an *f*). But the argument now moves from the statement "If *d* looks unlike an *f* then *d* is not

visually recognized to be an f" to "If d is visually recognized to be an f then d looks like an f". However, this simply doesn't follow: all that we can validly deduce from the first statement is "If d is visually recognized to be an f then d does not look-unlike-an-f". But from the fact that d does not look-unlike-an-f to someone we cannot conclude that it looks like an f to him. There are at least two ways in which it can be false that d looks unlike an f to P. One is that d looks like an f to P, but another is that d doesn't look any way to P, because P can see clearly what d is. If someone sees a chair in broad daylight and visually recognizes that it is a chair, it is at least arguable that he doesn't see it as a chair, since he couldn't see it as anything else. I shall look at this sort of argument in the next paragraph; my aim in this paragraph was to show that the argument sketched above, which purports to show that seeing-as is a necessary condition of visual recognition, is not formally valid. It only seems to be valid if we can assume that the only possible negation of "d looks unlike an f to P" is "d looks like an f to P".

We now need to look more closely at the possibility that visual recognition does not involve seeing-as. Suppose someone tells Winston to go into the next room and bring the book which is on the table. Winston goes into the room, sees the table, and without hesitation takes the book from it. Now he must have recognized that a certain piece of furniture in the room was a table, since otherwise he would hardly have been able to carry out his instructions without hesitation. But in ordinary circumstances such as these it is hard to see what could be meant by the statement "Winston saw the table as a table". This statement suggests that he might have seen it as something else, but what else could he have



seen it as? By contrast, "He recognized that it was a table" doesn't suggest that he might have recognized that it was something else.

Let us look more closely at some cases where it can properly be said that P sees d as an f.

(1) P sees d, d is a g rather than a f, but P would judge d to be an f were he required to judge what it is from looking at it. This is the standard sort of case where d doesn't look like an f, or doesn't look like an f to P. For example, d is a dead tree which in the mist looks like a man, or which in P's drunken state looks like a man to him.

(2) P sees d, d is a g rather than an f, and if he didn't know better P would judge d to be an f were he required to judge what it is from looking at it. This is the case of someone who experiences an illusion while knowing that it is an illusion. He sees the lines of the Müller-Lyer drawing as unequal, in the sense that he would from looking at them judge them to be unequal, if he didn't know that they were equal.

(3) P sees d, d is an f, and although in present conditions P might be expected to judge from looking at it that d is a g, in fact, were he required to judge, P would judge from looking at it that it is an f.

This sort of case sometimes arises in psychological experiments on perception. Suppose that P has been exposed to the sort of experiment where a trapezium is made to appear as a rectangle seen from an angle. After a while, let us suppose, P learns to recognize trapezia in the circumstances of the experiment, and no longer mistakes them for rectangles. Now in the second stage of the experiment P is asked to observe d, which is a rectangle seen from an angle. In the circumstances, P might well be expected to judge, from looking at d, that it is a

trapezium (he might well be expected to see it as a trapezium); but suppose it turns out that, were he asked, he would judge from looking at it that it is a rectangle. If this happened I think we would describe the situation as one in which, rather surprisingly, P sees a rectangle as a rectangle.

(4) P sees d which is both an f and a g, and P would judge it to be an f if required to judge what it is from looking at it. For example, d is an ornamental ashtray whose ashtray function is not immediately obvious. Someone, not knowing about such things, observes d for the first time. Were he asked what d is he would say it is an ornament. Here it would be reasonable to say that he saw it as an ornament, and perhaps also that he visually recognized that it was an ornament. However, objects such as this are clearly the exception rather than the rule.

The common thread running through these four types of case of seeing d as an f is that in each case P is disposed to judge that d is an f rather than a g (or he would be so disposed if he didn't know better (case 2)). The conclusion to be drawn is that "P sees d as an f" requires a context in which for one reason or another it might have been expected that P would see d as something else, g. Where there is no such context it doesn't make sense to say that P sees d as an f. Note that this is a matter of a statement not making any sense, and not merely a matter of a statement being weaker than another which could just as truly have been asserted, and being for that reason incorrect. Cases of this latter sort are common enough: Suppose I own three yachts. They are at anchor side by side in the bay. I point to one of them and say "That yacht is mine". This statement makes sense and is true, but it is misleading in the circumstances, since the stronger statement "All those yachts are mine"

would have been equally true. It could be argued along these lines that it is wrong to say that P sees d as an f in circumstances where P recognizes that d is an f, even though it is true that he sees d as an f. However, this is not the argument that I have been presenting. According to my argument the whole point of the "seeing-as" construction is to say that P saw d in a particular way, and a presupposition of this making sense is that P might not have seen d in this way. It is a case like "P sold his yacht", which only makes sense if P owned a yacht.

Finally, however, there is a twist in this tale. I have insisted that it only makes sense to say that P sees d as an f if the context is one in which P might not have seen d as an f. But there is one particular kind of context which I have not mentioned, namely, the context in which perception and recognition are being discussed from a scientific or philosophical point of view, and in particular when the difference between adult perception and infant perception, or between human perception and animal perception is under discussion. Presumably an infant can't see that a table is a table because it doesn't know what tables are; it is not yet familiar with the classification of objects into kinds. Nor is it likely that a mouse can see that a shoe is a shoe when it is before its eyes. Thus if we are considering the differences between infant (or animal) perception, and normal adult human perception we may quite sensibly say that while the infant John sees the table and the mouse sees the shoe, John's father sees the table as a table and the shoe as a shoe. Thus given the context of a philosophical or psychological discussion about perception, it makes sense to say that when an adult recognizes that something is a table he sees it as a table. But the phrase "sees as" is still playing its normal role here. It is being used to draw attention

to the fact that although John's father would judge the thing to be a table, he might not have done. For not every perceiver in his position would be inclined to judge that the thing was a table, and John's father might himself not do so if he were deranged or under the influence of some hallucinogenic drug.

Where the context of a statement is that of a scientific or philosophical discussion, questions are raised which would not otherwise be raised. In ordinary circumstances it makes no sense to say that John's father sees the table as a table, for in ordinary circumstances the presupposition for the meaningful use of "sees as" is false. I.e., it is false that John's father might well not have seen the table as a table. But a scientific or philosophical context of discussion alters this situation. Given this special context it is no longer so obviously false that John's father might not have seen the table as a table. For in this context of discussion all sorts of possibilities are entertained that are not otherwise entertained: John's father might have been suffering from some psychotic illness, or he might for that matter have been a mouse.

Now since our present context of discussion is a philosophical one it does make sense for us to say that whenever P visually recognizes that d is an f he sees d as an f. But it should be clear by now that this is not to be interpreted as meaning that when P visually recognizes that d is an f he has something, or something goes on in him, which is denoted by the phrase "seeing d as an f". All that is being said is that from looking at d P would judge d to be an f, and it is presupposed that he might not have been disposed to make this judgement, for reasons which might be discussed by philosophers if no one else.

From this discussion of recognizing and seeing-as we can now extract one necessary condition for the truth of "P visually recognizes that d is an f". It is that P would judge, from looking at d, that d is an f. Note that P does not have to make the judgement "d is an f" if he is to count as recognizing that d is an f. (Recognizing is not a matter of doing anything, in the way that judging is). All that is required is that this is what he would judge if he were required to judge. In other words, it must be the case that from looking at d P is disposed to judge that d is an f. This is my reformulation of the "seeing as" condition for visual recognition; if "seeing as" is understood in this way then I would maintain that seeing d as an f is a necessary condition of visually recognizing that d is an f.

The question now arises of whether this condition, together with the uncontroversial condition that d should in fact be an f, is sufficient for P to recognize that d is an f. It is not hard to construct examples to show that these two conditions, jointly, are not sufficient. Consider the following two examples:

(1)* There is a ptarmigan in its white winter plumage sitting on the snow near an Alaskan oil well. An explosion spatters the bird with oil so that it now looks like a ptarmigan in its summer plumage. P, who is familiar only with ptarmigans in their summer plumage sees the oil spattered bird, and, naturally, it looks like a ptarmigan to him. (Several other arctic birds would have looked like ptarmigans to him had

*I am grateful to Roger Shiner for this example, which is much better than the one I had originally constructed. The general point behind the examples is exactly analogous to that made by Gettier (1963) in his criticism of the view that knowledge is justified true belief.

they been spattered with oil in just this way, but, just by chance, the bird which now looks like a ptarmigan to P is a ptarmigan). In such a case we must say that P sees the bird as a ptarmigan, i.e., he is disposed, from looking at it, to judge that it is a ptarmigan; it is a ptarmigan; but we would not allow that P recognized it as a ptarmigan.

(2) There is a ptarmigan flying by. We see it from a peculiar angle. It doesn't look like a ptarmigan. P watches it through binoculars. The binoculars are poor, and distort the image. By chance they make the ptarmigan look like a ptarmigan. P sees the bird as a ptarmigan. It is a ptarmigan. But P doesn't recognize that it is a ptarmigan--with these binoculars it is impossible to recognize ptarmigans or any other birds.

From examples such as these I conclude that the two conditions

(1) d is an f;

(2) P is disposed, from looking at d, to judge that d is an f;

are not jointly sufficient for the truth of "P visually recognizes that d is an f". Nevertheless, they are both necessary conditions.

The question now is what, exactly, is missing in the examples above which prevents them from being examples of P recognizing something as a ptarmigan. The important thing to notice, I think, is that in both examples circumstances are such that P could not reliably distinguish ptarmigans from non-ptarmigans. P is disposed to judge that this bird is a ptarmigan (and he would be right), but he doesn't have a general capacity to judge correctly whether birds are ptarmigans in these circumstances. For other arctic birds spattered with oil would be judged by him to be ptarmigans, and ptarmigans spattered in the wrong way would be judged by him not to be ptarmigans. Thus in the circumstances where, in winter, a bird is spattered with oil and P is unaware of this,

p does not have the ability to judge correctly whether or not the bird is a ptarmigan. P no doubt has the ability to judge correctly in other circumstances, but not in these circumstances; hence he cannot be said to recognize in these circumstances, even though he may be disposed to judge in a way that happens to be correct.

We may note that the reason P lacks the ability to judge correctly in the circumstances is two-fold. First, his knowledge of ptarmigans is inadequate--he does not know that ptarmigans in winter are white all over. Secondly, he is in a bad position for recognizing this ptarmigan, in that the bird has been spattered with oil. Generalizing from this we may say that whether a person recognizes a thing depends a great deal on him--on what he believes and knows, on the state of his vision, on whether he is tired or not paying sufficient attention to what he sees, etc. One rather special condition that should be included here is that the person's confidence in his ability to recognize should not have been undermined. Consider the following example: P sees a bird sitting on the ground near an oil well on a summer's day under conditions that would normally be adequate for him to recognize whether it is a ptarmigan. However, P has been deceived in the past, and thinks it likely that this bird has been spattered with oil. He thinks, therefore, that it is likely that several species would look like ptarmigans under these conditions, and as a result he is disinclined to make any judgement about whether the bird is a ptarmigan or not. He thinks, falsely, that he is in no position to judge. In such a case we cannot say that P recognizes that the bird is a ptarmigan. He would have recognized it if his confidence had not been undermined, but it has been undermined. The lack of such undermining beliefs needs to be included in what constitutes being in a suitable

state for recognizing. But in addition to being in a suitable state one must be in a suitable position with respect to the thing in question: For instance, the lighting conditions must be satisfactory, there mustn't be a dense fog, the thing must be within range of one's eyes, and so on. At least these are the sorts of condition that put one in a suitable position for visual recognition. Where recognition is not by means of the senses, what puts one in a suitable position to recognize that something is an f is information which one has obtained about that thing in some other way. So long as one knows by some means that a thing has certain characteristics one may be able to recognize that it is an f. For example, being within auditory range of the piano does not, for most people, put them in a position to recognize whether it is Middle C that has been played. However, one may recognize that it is Middle C if one can see that the note produces a certain pattern on an oscilloscope, or if one can hear that it is the same note as a concurrently sounding tuning fork, or if one has been told by a reliable person that its frequency is 256 cycles per second, and so on. There are many different ways in which one can come to be in a suitable position for recognizing that a thing is an f; or, what I claim amounts to the same thing, there are many ways in which one can come to be in a position which gives one the ability to judge correctly whether or not things are fs.

I am saying, then, that for a person to recognize whether a thing is an f he must be in a suitable state, and in a suitable position with respect to the thing, such that if he is in such a state and in such a position with respect to a thing, he will, if required to judge, judge correctly whether the thing is an f. In symbols we can write

Rwdft₀ for w recognizes whether d is an f at time t₀.

swt₀ for w is in state s at time t₀.

pwdt₀ for w is in position p with respect to d at time t₀.

Qwdft₀ for w is required to judge whether d is an f at time t₀.

Jwdft₀ for w judges correctly whether d is an f at time t₀.

Then we can give our account of recognition as

$$\text{Rwdft}_0 = (\exists s, p)(\text{swt}_0 . \text{pwdt}_0 (y)(t)(\text{swt} . \text{pwy} . \text{Qwyft} \rightarrow \text{Jwyft}) - (1)$$

This way of putting it brings out that w's recognizing whether d is an f involves not only his being in a suitable state and position, but also that a certain 'law' holds of him. w must, that is, be such that if he is in a suitable state and position and is required to judge, then he will judge correctly. It is something about the person w which ensures that this 'law' holds of him, and we may reasonably think that it is a matter of w's brain or mind being in a certain state, or having a certain structure. I shall leave aside for the moment the question of what, exactly, it is about a person that allows him to judge correctly concerning whether things are of a certain kind, and, analogously to my procedure in the case of solubility, introduce a term l such that l refers to whatever it is that gives a person the capacity in question. Then we can write

$$\text{Rwdft}_0 = (\exists s, p, l)(\text{swt}_0 . \text{pwdt}_0 . l . w . (y, t)[lwt < (\text{swt} . \text{pwy} . \text{Qwyft} \supset \text{Jwyft})]) - (2)$$

We have then the sufficient condition for a person w to recognize whether d is an f. (The condition for him to recognize that d is an f is of course obtained simply by adding the requirement that d is an f). It remains to ask which part of this sufficient condition constitutes having the concept F. This was the programme I outlined on page 72 and by now

it is not hard to identify the necessary condition we are seeking. To have a concept, we agreed in Chapter 1, is to have a capacity, and the only capacity involved in recognition--according to the above formula--is the capacity for correct judgement about whether things are of a certain kind. If w recognizes that d is an f then he must have the capacity symbolized by

$$(\exists s, p, l) (lw.(y, t) [lwt \prec (swt.pwyt.Qwyft \supset Jwyft)]). \quad - (3)$$

That w should have this capacity is a necessary condition for his recognizing d as an f at t ; the additional conditions for recognition being swt_0 and $pwtd_0$. Now clearly these latter two conditions have nothing to do with whether w has the concept F , and this confirms that it is the rest of the formula that should be identified with having the concept F . That is, to have the concept F is to have the capacity for judging correctly whether or not things are fs , or to put it slightly differently, to have a concept is to have the capacity for judging correctly whether or not things are of a certain kind.

One qualification must be made now: I have emphasised in Chapter 1 that having a concept is a matter of degree. According to my account just given this means that there must be degrees of the capacity to judge correctly whether things are of a certain kind, and this indeed seems to be the case. For instance, two people will have the concept Kestrel to different degrees if one can judge correctly whether birds are kestrels from the way they fly, or from their shape and colour, or from the calls they make, or from the characteristics of their eggs; whereas the other can judge correctly only from shape and colouring. Each person is, in suitable circumstances, capable of distinguishing kestrels from other birds, but the first person can do so under a much wider range of

circumstances, since he knows much more about what is involved in being a kestrel, or has a better grasp of the concept Kestrel. To have any concept involves being able to judge correctly within a range of circumstances, but the range may be wider or narrower, depending on the degree to which one has the concept.

Another way of looking at this matter is that if I can judge correctly whether birds are kestrels only from listening to the sorts of noises they make, whereas you can judge correctly on the basis of many different bits of information, then a situation may arise where we are presented with some exotic bird that sounds just like a kestrel, and as a result I can't tell whether it is a kestrel, whereas you can. To have a concept to a high degree involves that one can judge correctly whether things are fs rather than a great many other similar things; whereas to have the same concept to a lesser degree involves that one can judge correctly whether things are fs rather than a lesser number of similar things. Thus if I can tell bank voles from field voles and short-tailed voles, whereas you can tell them only from animals such as rats and mice, then my grasp of the concept Bank Vole is greater than yours. In a case like this one might want to say that you do not have the concept Bank Vole at all, but only a vague concept Vole. However, to have the concept Vole is part of what is involved in having the concept Bank Vole, so that it is quite proper to say that someone who has only the concept Vole has the concept Bank Vole to some extent.

In order to point up the fact that having a concept is a matter of degree, and consequently that capacities for correct judgement may be more or less extensive, we might say that to have the concept F is to have the capacity for judging correctly whether things are fs, rather

than of other kinds. This formulation allows us to vary what other things the concept possessor can distinguish fs from, and consequently the degree to which he has the concept F. For reasons of brevity, however, I shall on the whole use the preceeding formulations of what it is to have a concept, unless it would be misleading to leave out the qualification just made.

A further point to note is that if we define what it is to have a concept in terms of having a capacity for correct judgement it follows that anyone who has the concept will, when suitably placed and in a suitable state, recognize whether things are fs, and so have the ability to recognize whether things are fs. This is so because if one has the concept F he has the capacity to judge correctly whether things are fs when in a suitable state and position, and, according to formula (2) on page 84 if someone is in a suitable state and position with respect to any f, and has the capacity to judge correctly whether things are fs, then he recognizes whether they are fs. Thus capacities for correct judgement and capacities for recognition cannot be separated. If a person has one he has the other, so that accounts of concept possession in terms of recognitional capacities and accounts in terms of judgemental capacities are not opposed to one another.

3.3 The bases of capacities for correct judgement

We may now return to the question of what 1 is in the formula (3) on page 85 which, as we have seen, represents the fact that w has the concept F. In other words, in virtue of what does a person have the capacity for correct judgement concerning whether things are fs? We know that 1 is a characteristic of a person such that if he possesses it, it follows that when in a suitable state and position and required

to judge, he will judge correctly concerning whether a thing is of a certain kind. Consider the case of recognizing that something is a kestrel. We note first that being in a suitable state and being in a suitable position with respect to a kestrel is not sufficient to ensure recognition. If someone has never learned to classify things as kestrels, if he has never seen or read about kestrels, then he will not recognize that the bird is a kestrel. Such a person, being in a fit state and a suitable position with respect to a kestrel, might recognize that it was a bird, but would not recognize that it was a kestrel. The classificatory standard Kestrel would not exist for him; he would not think in terms of kestrels; or, as we might well say, he would not have the concept of a kestrel.

What is lacking in such a person is that on being presented with kestrels he recognizes that they have curved beaks, brown wings, longish tails, etc., but nothing further happens. He is not inclined, as a result of seeing these birds, to judge that they are kestrels. By contrast a person who can recognize kestrels, who has the concept, will be inclined to judge that the birds are kestrels. And this is not just a matter of his being inclined to say "They are kestrels"; it is a matter of his being inclined to make various judgements about the birds that the first person isn't inclined to make. For instance, the second person will, on seeing a bird with the stated characteristics, be inclined to judge that this bird has black specks on its wings, even though he is too far away to see whether it has. He will be inclined to make this judgement because having black-specked wings is another characteristic of kestrels. Similarly--if he has a really good grasp of the concept Kestrel--he will be inclined to judge that the bird has a certain sort of call,

that it hatched from an egg with certain characteristics, that it will mate with birds similar to itself, that its young will have certain characteristics, and so on. If one classifies a bird as a kestrel on the grounds that it has certain characteristics then ipso facto one is inclined to judge that it has certain other characteristics. Or, we can say that to have the concept of a kestrel is to have the concept of a bird with characteristics A, B, C, D, E,..., and then if a person has the concept he will, on seeing a bird with characteristics A, C, D, E, F,..., be inclined to judge that the bird has the characteristic B. (For simplicity I leave aside the possibility that he may know of another sort of bird that has characteristics A, Z, C, D, E, F,...). In other words, on seeing a bird with characteristics A, C, D, E, F,..., he will acquire the belief that it has the characteristic B. Similarly, on seeing a bird which has characteristics A, B, D, E, F,..., he will acquire the belief that this bird has the characteristic C, and so on.

In general, I suggest, having a concept such as Kestrel involves having what I shall call certain 'belief-connections'. If a person believes that a bird has certain characteristics then, if he has the concept Kestrel, he will come to believe that it has certain other characteristics. For a person who has the concept, the acquisition of one belief leads to the acquisition of others, and it is the fact that this is so--the fact that such a causal belief-connection exists in him--that enables him to judge correctly that a bird is a kestrel. I want to distinguish this thesis from a rather similar thesis that I consider to be false. According to this other thesis* what enables me to judge that

*Cf. Bruner, Goodnow and Austin (1956).

this bird has black specks on its wings, given that I believe it has a curved beak, is hovering in one place, etc., is my general belief that all birds with such and such characteristics have black-specked wings. That is, I look at the bird, notice that it has certain characteristics, infer that it is a kestrel and in doing so infer that it has black-specked wings. Such cases, where a person notices that a thing has certain characteristics and then makes an inference to the kind of thing it is, certainly do occur, but they are not typical cases of recognition. The typical case is where one looks at the bird and without thinking or making any inferences recognizes that it is a kestrel (which involves being inclined to judge that it has various characteristics). Now if, as a matter of fact, one doesn't usually make inferences when one recognizes, the thesis I have rejected must indeed be false. For according to that thesis recognizing is a matter of coming to believe that the thing has certain characteristics A, B, C, and then inferring with the help of the belief that all things with A, B, C have X, Y, Z, that this thing has X, Y, Z. Some people might want to defend the thesis by saying that the inference does take place, but that it is unconscious; however, this seems to me an evasive move. There is no good reason for supposing that such unconscious inferences take place; instead what we have is a situation where one belief results in another, not as a result of inference but in a causal sort of way. (The causal connection may have been set up as a result of one's having made inferences in the past, but that is another matter). It is true that if one wants to justify one's belief that the thing has X, Y, Z on the grounds that it has A, B, C, one must appeal to a general statement that will allow the inference. But justification is irrelevant to recognition. You don't need to have good

reasons for thinking that something is a kestrel in order to count as recognizing that it is a kestrel, though you may need good reasons if you have to convince someone else that you recognized it.

The thesis I have rejected brings an unnecessary belief element into the account of recognition, i.e. a general belief that allows one to infer from things having A, B, C to their having X, Y, Z. There is now another false thesis which leaves out an essential belief element. Someone who has been convinced that one doesn't infer "x is a kestrel" from "x has A, B, C" when one recognizes that x is a kestrel, may now want to go further and say that one can recognize that x is a kestrel even though one doesn't believe that x has A, B, C, or any other set of characteristics. Such a person might urge that one looks at the kestrel and simply recognizes that it is a kestrel; there need be no point at which one judges that it has, say, A, B, C, let alone any point at which one infers that it is a kestrel because it has A, B, C. I think this last point is correct. One does not, in recognizing the bird, judge that it has characteristics A, B, C. However, it doesn't follow that one doesn't believe that it has A, B, C. In my next chapter I shall argue that a belief is a disposition to judge, and if this is acceptable, it follows that it is quite possible to believe that the bird has A, B, C without judging that it has A, B, C. To say that someone believes that it has A, B, C is, I think, to say that if he were required to judge, if the question were put to him in some way, then he would judge that it had A, B, C. Believing that the bird has, say, a long tail and a curved beak are the sort of thing that do seem to be typically involved in recognizing that it is a kestrel. For although the person may not judge that it has those characteristics, still, if he were questioned, he

would surely agree that the bird had these characteristics. At the time he sees the kestrel, he believes it has those characteristics, in the sense that if he were asked whether it had them he would say Yes, or if the question arose for him in some other way he would judge that it had the characteristics. As a result of having this belief he acquires the belief that the bird is a kestrel, i.e., has other characteristics X, Y, Z. This belief is a result of his having the first belief, but there need have been no inferring, and no judgements need have been made.

To summarize on this point: What enables a person to recognize whether things are kestrels is the fact that he has certain belief-connections, i.e., his psychological state or 'set' is such that if he believes that a thing has certain characteristics, then he will believe that it has certain others.

Now to recap the main conclusions of this section and the last: A person has a concept if and only if he has the capacity to judge correctly whether or not things are of a certain kind. Where we are dealing with a capacity we may look for the base of the capacity, and, in the case of the example discussed (the concept Kestrel) we located the base of the capacity in the existence of certain belief-connections the person has. It is having these belief-connections that gives a person the capacity to judge correctly whether things are kestrels, and if he has this capacity he will recognize kestrels when he comes across them.

Having thus established what the connections are between recognizing, being able to judge correctly, and having concepts, I shall concentrate, from now on, mainly on the latter two notions, discussing the notion of judgement in some detail in Chapter 4. Before going on to do that,

however, it is necessary to consider whether my account of concept possession is satisfactory when applied to concepts of various kinds, or whether it only applies to concepts of material objects such as kestrels.

3.4 Having concepts--some examples

Let us consider dispositional concepts first, taking as example the disposition I discussed in some detail in Chapter 2, i.e. solubility.

According to my account of concepts so far, to have the concept Soluble is to have a property 1 that enables one to judge correctly whether things are soluble, when one is in a suitable state and suitably placed. We need to consider what counts as being 'suitably placed', and then consider what property 1 one must have if one is to have the concept. There are in fact several ways in which one can be so placed that one has the capacity to judge correctly whether a substance is soluble in water. The most obvious case is where one has put a sample of the substance in water oneself, and has watched it disappear, but one could be equally well placed if one knew that someone else had performed the experiment with the stated result.

Now in order to have the capacity to judge correctly whether a substance is soluble it is not sufficient that one should know, by some means, that a sample of it disappeared when placed in water. Someone quite unfamiliar with the concept of a soluble substance would not be inclined to judge, from the result of the above experiment, that if any sample of the substance was placed in water it would disappear. So far as he was concerned some samples might disappear while others might not. If one is to believe that any sample of a substance will dissolve when placed in water, given only that a particular sample has disappeared it must be the case that one has a certain belief-connection, i.e. it must

be the case that if one believes that a sample has disappeared when placed in water, then one will believe that any sample will disappear when placed in water. Someone who has this belief-connection will, when presented with a disappearing sample, be inclined to judge that any sample of the substance will disappear, and in our world at least he will normally be right. Thus it is his belief-connection that gives him the capacity to be right concerning whether things are soluble; it is in virtue of having this belief-connection that he has the concept Soluble.

Let us consider now a very different sort of concept--the concept of an artefact such as a telescope. Telescopes can often be recognized by their shape and by the fact that they have a large lens or mirror at one end, and another lens or set of lenses at the other end. However, these physical characteristics are not the only, and not the most important, things that are relevant in deciding whether an instrument should be classified as a telescope. The really crucial thing is whether the instrument's function is to make distant objects appear larger.

(From the point of view of optical construction a simple telescope and a simple microscope are much the same thing--it is what they are used for that tends to decide the question of how they are to be classified).

I do not want to over-emphasise the importance of function here--I doubt if we should want to classify any conceivable instrument that made distant things appear larger as a telescope--however, it does seem that function plays a very important role in such cases.

Granted this, what can we say about a person who has the capacity to judge correctly whether things are telescopes? Such a person will, on seeing that an instrument has two lenses arranged in a long tube, etc., be inclined to judge that the instrument is used for observing distant

objects. Conversely if he is told that Fred has an instrument in his attic which he uses for observing the stars, he will be inclined to judge that this instrument will have one of a limited range of optical constructions. From seeing that a thing has certain characteristics or from learning or coming to believe in some other way that it has these characteristics, a person with the concept will come to believe that it has certain other characteristics. In the case of artefacts such as telescopes the situation is usually that one sees the physical characteristics of the thing and as a result comes to have certain beliefs about its function, or rather this is so if, or insofar as, one has the relevant concept. A person who does not have the concept is precisely someone who sees telescopes and thereby acquires no beliefs about their function.

Consider next a concept that might be classified as a moral concept, namely, the concept Murder. According to my general account of concept possession, to have the concept Murder is to have the capacity to judge correctly whether acts are murders. We can characterize an act as a murder only if it satisfies certain criteria, such as that it is the intentional killing of another human being from motives of personal gain. If this is accepted we may then be tempted to think that anyone who classifies a killing of a human being as intentional and as motivated by personal gain, must ipso facto be classifying it as a murder. However, this is not so according to our ordinary understanding of the concept. Someone who did not, as a result of believing that an act was such a killing, come to believe the act was wrong, could hardly be said to have the concept. Such a person might observe an intentional killing for personal gain and--that would be the end of the matter so far as he was

concerned. Nothing else would happen--he would not believe that the murderer should be brought to justice, or punished or blamed. It is only if one has certain belief-connections involving beliefs about moral wrongness, that one will be inclined to judge that certain things should be done if certain acts are perpetrated. But if one isn't inclined to judge that certain things should be done if Smith intentionally kills Jones for his money, then one just doesn't have the concept Murder. It is important to note here, although I cannot go into the matter in detail, that the way in which one manifests one's beliefs that certain acts are morally wrong will include not only dispositions to say that the acts are wrong, or dispositions to behave in certain ways, but also the presence of various attitudes and feelings*. Someone who has the concept Murder is going to be horrified if he witnesses one, he will shudder at the act and be inclined to hate the person who perpetrated it. Having such feelings and attitudes towards murder is part of having the concept, but this is quite compatible with my account, since having such feelings and attitudes in relation to an act can be regarded as constituting, at least in part, what it is to believe that that act is wrong. So long as 'having beliefs' is not interpreted in too narrowly intellectual a way, then having moral concepts, like having many other concepts, is a matter of having certain belief-connections.

One rather special group of concepts includes concepts that are involved in playing games. Here again we find, on the whole, that if one is to have such a concept he must have certain belief-connections. One has the chess concept King insofar as, for example, one's seeing that

*See Ryle (1958).

(or believing that) there is a piece on the board which at the start of the game was on a particular square (K1) leads one to believe that that piece may move one square in any direction, that it can be threatened by opposing pieces but not taken, and so on. Similarly, to have the concept Castling is to have the belief-connection: if you believe that the king and rook have not moved so far in the game and that the squares between them are vacant and that these squares are not threatened by opposing pieces, then you will believe that the king may be moved to KKt1 (orQB1), while at the same time the rook is moved to KB1 (or Q1). Such belief-connections are of course acquired when one learns the rules of chess. Beginners are taught that in circumstances A you may or must do B, with the result that when they believe circumstances to be A, they also believe that they may or must do B. As a consequence they are able to recognize moves such as castling when these moves are made, and, conversely, someone who has not acquired the appropriate belief-connections will not recognize the moves, but simply think--in the case of castling, say--that the player making the move is cheating or being clumsy, or signalling that he is tired of the game. In brief, to have the chess concepts is to have the capacity for judging correctly whether chess moves are in accordance with the rules, and having this capacity involves having certain belief-connections.

Next, I want to consider a concept corresponding to a scientific 'theoretical term', such as the concept Electric current: According to my account a person will have this concept if when suitably placed he is able to judge correctly whether a current is flowing or not. It is clear that if he is to have such a capacity he must have at least some acquaintance with elementary physics, for if someone with no such

knowledge is presented with current-carrying circuits producing deflections on ammeters or lighting lamps, or heating coils of wire, he will not be able to judge, in each case, that a current is passing. Such phenomena will remain isolated phenomena for him. What is needed, if someone is to count as being able to judge correctly whether a current is passing, is that he should have a set of belief-connections. For instance, it should be the case that if he believes that magnetic needles are deflected near a wire then he should believe that the wire will be connected to something like a battery and that it will tend to become warm. If he believes that connecting the wires from the battery to a lamp will result in the lamp lighting, then he should also believe that there will be a magnetic effect near the wire. If he believes that two batteries are connected in series then he should believe that there will be more heat and light, whereas if he believes that if they are connected in parallel then he should believe that there will be no such increase; and so on. Given a sufficient number of these belief-connections a person will be able to tell from one or two observations that a whole range of regularities will hold. Whether a person has the concept is a matter of whether he is disposed to make certain judgements about what else will happen, when he sees, say, a magnetic deflection or a lighted lamp. That is, it is a matter of his having a certain set of belief-connections and hence expecting certain regularities to hold where certain others hold. Someone who has the concept Electric Current may also picture a fluid flowing through the wire, but this would seem to be unnecessary to having the concept. Keeping a certain picture in mind may help to maintain in one's mind the connections which exist between certain regularities, but it does not seem essential. (One may note that the

entities conceptualized in modern nuclear physics are not picturable by anyone, yet physicists would certainly be said to have the concepts Neutrino, Positron, Spin, etc.)

A difficulty may have been felt with this and some of the previous examples which is partly terminological in nature. It may seem too strong a requirement for having the concept Electric Current that one should believe that certain regularities must occur if one believes that others occur. It seems quite possible to imagine someone who understands the concept Electric Current but does not think that electric currents exist in our world. He takes this view in that he would not believe that certain regularities must hold were he to believe that others hold. When presented with compass needles deflecting near wires he is not disposed to judge that electric currents are passing, and thus will not have the capacity to judge correctly whether electric currents are present. Yet of such a person we might still want to say that he had the concept Electric Current so long as he knew what the world would have to be like for there to be electric currents in it. (By a world in which there are electric currents I do not mean a world where the switches are on all the time; if all the switches were off in our world it would still be a world in which there are electric currents, since our world is such that certain regularities are always found together).

We need to agree on a terminology here: clearly there is a difference between the man who naturally thinks in terms of electric currents and can tell if they are present in various circumstances, and the man who does not naturally think in terms of them, even though he understands what they would be if they existed. The first man has the concept in a full practical sort of way--it is one of the concepts in

terms of which his thinking about the world is framed; he has the concept in the sense that it is one of his concepts, as contrasted with other concepts--such as Phlogiston perhaps--which he understands but does not have in the same way. The second man only 'has' the concept in the sense that he understands what belief-connections he would have to have if he were to have the concept. He has the concept in the way a modern historian of chemistry has the concept Phlogiston. Similarly, in the case of moral concepts, for example, there is an important difference between the person who has the concept Murder in a full practical way, and the person who understands the concept but doesn't actually employ it himself. The first person comes to have various beliefs, attitudes and feelings if he sees a murder; the second person knows that some people come to have these beliefs, etc., and he appreciates that this is why they classify certain acts together as murders, but he himself doesn't have the same belief-connections; he doesn't believe that the act which he witnesses is morally wrong; he is not inclined to judge that it is a case of murder; because he thinks that there is no such thing as murder--only what others consider to be murder.

In what follows I shall stick to the convention that having a concept is to be taken in the full practical sense such that if a person has a concept he will be able to judge correctly whether things fall under the concept. For the more sophisticated state of knowing what belief-connections one would have to have if one were to have the concept, but not actually having it, I shall reserve the phrase "understanding a concept".

One rather special group of concepts should now be discussed, i.e., concepts such as Red, Cold, Salty, which are usually applied directly on the basis of sensory experience. Here it seems that one does not need to have any belief-connections in order to have the capacity to judge correctly whether things are red, cold, salty, etc. when one is suitably placed with respect to them. In these cases the most obvious 'suitable position' is where the thing is present to one's senses, and it might be said that this is all that is necessary if one is to be able to judge correctly whether it is red, salty, or whatever. However, I do not think that such a view would be correct. For a young child cannot judge correctly whether things are red even though he is within visual range of them, is not blind, etc. He only comes to be able to judge through coming to be able to respond in a way that we count as correct, and this comes about partly through physiological development and partly through teaching, imitation and other forms of interaction between the child and adults. We cannot say that a condition of a child's being able to judge correctly whether things are red is that it must on seeing red things come to believe that they are red, since that would presuppose that it had the concept Red; but we can say that it must be disposed to act appropriately to them, and that this disposition is acquired partly through biological maturation, conditioning, etc., and partly through interaction with adults. (I shall say more about why such things as conditioning cannot be sufficient in my next chapter).

I conclude that to have concepts such as Red and Salty is not to have certain belief-connections. Instead, it is to have certain tendencies to respond in a correct way. Having such tendencies is involved in having any concept, but in the case of most concepts one has

the tendencies as a result of having certain belief-connections. It is the lack of the belief factor that makes concepts such as Red, Cold, Salty a very special case, and which inclines one to think of them as more 'basic' than concepts such as Kestrel or Soluble.

I have now illustrated my contention that, in the case of many concepts, to have a concept is a matter of having certain belief-connections which give one the capacity to judge correctly whether things are of a certain kind when one is suitably placed. I have given examples of a material object, a dispositional concept, an artefact concept, a moral concept, a couple of concepts involved in playing a game, and a concept corresponding to a scientific theoretical term. Concepts such as Red fit the first part of my account, that to have a concept is to have the capacity to judge correctly whether things are of a certain kind, but not the second, since in their case the capacity does not rest on a belief-connection or connections. Three other main groups of concepts remain to be discussed, i.e. mathematical concepts such as Multiplication, Infinity; logical concepts such as Negation, Universality, Consistency; and formal concepts such as Thing, Event, Kind, Fact. In the case of these concepts I shall argue only for the first part of my thesis--that to have the concepts is to have the capacity to judge correctly whether things are of certain kinds; however I would not rule out the possibility that something akin to the second part of my thesis holds at least in the case of mathematical concepts. E.g., it seems that part of what is involved in having the concept Multiplication is that if one believes e.g. that two lots of 13 have been added to one lot of 13, then one will believe that the sum will be the same as if 12 lots of 3 are added to one lot of three. However that may be, I do wish to argue that having

the concept Multiplication is a matter of being able to judge correctly whether things are of a particular kind. The 'things' here are mathematical operations, and the kind is multiplications. In other words, one has the concept Multiplication insofar as one can judge correctly whether a person is multiplying (so long as one is suitably placed, familiar with his notation, etc.) One special way in which one can manifest one's ability to judge whether an operation is multiplication is by performing the operation oneself when circumstances require it. Of anyone who can multiply we will say that he has the concept Multiplication, since he could not be said to be multiplying--knowing what he was doing--without being able to judge correctly whether operations are multiplications.

The mathematical notion Infinity may at first sight seem to be an exception to my account, since having the concept Infinity is hardly a matter of being able to judge correctly whether things are infinities. However, if it is agreed that to have this mathematical concept is to be able to judge correctly whether such things as decimal expansions will terminate or not, then my account will fit this concept.

Logical concepts such as Negation and Universality can best be regarded as concepts of kinds of fact, i.e., negative and universal facts. Similarly, consistency can be regarded as a concept of a relation between facts. According to my account of concepts, to have the concept Universality will be to have the capacity to judge correctly whether facts are universal, i.e., whether it is a fact that all members of a class have a certain property. To have the concept Consistency will be to have the capacity to judge correctly whether one fact is consistent with another, and so on. One shows that one has the capacity to judge correctly about universal facts by making correct universal judgements,

and that one has the capacity to judge correctly about negative facts by making correct negative judgements; hence in cases such as these having the relevant concept is a matter of being able to make correct judgements of a particular logical form.

We come finally to the group of concepts that are sometimes called 'formal concepts'. The term "formal concept" in the sense in which I am using it comes from Wittgenstein's Tractatus (4.126). Examples of formal concepts which Wittgenstein gives are Object, Thing, Fact, Function, Number, and of them he says that they "are represented in conceptual notation by variables, not by functions or classes". (4.1272). For instance, if we wish to say that there is a dog in the room we represent the concept Dog by a class (predicate) letter D:

$$(\exists x) (Rx.Dx)$$

but if we wish to say that there is a thing in the room which belongs to Fred, we represent the formal concept Thing by a variable letter x:

$$(\exists x) (Rx.Bfx).$$

If we want to know how to say that something is a thing, the answer is that this can't be expressed in 'conceptual notation'; it is in fact nonsense. Wittgenstein maintains that concepts such as Object, Fact, Number are pseudo-concepts, i.e. they are not concepts in the same sense as 'ordinary' concepts such as Man, Atom, etc.

My own account of concept possession seems to lead to a similar conclusion. I have said that to have a concept is to have the capacity to judge correctly whether things are of a particular kind, which works well enough for concepts such as Dog or even Electron, and also, given a suitably wide use of "thing", for event concepts such as Flash and Fission, concepts of mathematical operations such as Multiplication, and

property concepts such as Red. (There may seem to be some strain in the case of property concepts--we don't very often say that colours are things of any kind. Yet it is quite proper to say (things like!) "Things like colours don't come into physics--physics deals only with primary qualities". "Thing" can be used in a completely general way--it is the doyen of formal concepts--whereas "object", I think, has a more restricted use). Now if we try to substitute Object, Fact or Number for Kestrel or Dog in our account of what it is to have a concept we simply generate nonsense. It makes no sense to speak of the capacity to judge correctly whether things are objects, facts, numbers, or whether they are events, properties, kinds, and so on.

Perhaps one reason for this is that when we speak of someone as having a particular concept or a particular capacity, it makes sense to suppose that he might not have had that concept or capacity. Whether or not he has it shows in the details of what he can and can't do. But in the case of 'concepts' such as Thing, Event, Kind, it is hard to see what in particular a person must be able to say or do if he is to count as having the concept. It seems that insofar as he has any event concepts he has the 'concept' Event, insofar as he has any property concepts he has the 'concept' Property. But if one has any concepts at all he must surely have some event concepts, some property concepts and so on. These formal concepts seem to be concepts without which one could not have any concepts at all. They are 'formal' concepts in that they determine the 'form' of our thought about the world--i.e. the most general features of our thinking--and not 'material' concepts which determine the particular sorts of things we can think about. Because of their peculiar nature formal concepts are very difficult to discuss

intelligibly, and I shall not attempt to understand them more fully here. If it is said that my general account of concepts does not apply to them, I would be prepared to accept this while at the same time maintaining that no account can really do them justice.

Finally, I want to consider another sort of pseudo-concept. I alluded in Chapter 1 (p. 27) to the question of whether concepts can be formed simply by combining other concepts. For instance, if we have the concepts Red, Metal and Sphere do we in virtue of that have a concept Red Metal Sphere? Is there, indeed, any such concept? Similarly, if we have the concepts Red, Blue, Sphere (and the concept Disjunction) do we in virtue of that have a concept Red or Blue Sphere which applies to red spheres and blue spheres but to nothing else?

To have the concept X, I have said, one must be able to judge correctly whether things are of a certain kind. Red things form a kind, so do things made of metal, so do spheres, but it may be questioned whether red metal spheres form a kind in the same sense. One hesitates here, I think, because one sees no point to the classification*. One can however imagine a point, but that means telling a special story, such as a story about a kind of machine, one of whose components must be a red metal sphere since nothing else could fulfil the function of that component. In such a context people dealing with the machine would undoubtedly form the concept Q which would apply to red metal spheres because such spheres could be used for a particular purpose. Someone who had the concept would be able to recognize Qs, i.e. he would be able to recognize things that would fulfil the function in question. However it

*Cf. Kovesi (1967).

is clear that the concept Q is not the concept Red Metal Sphere; Q is a functional concept like Telescope which only involves the concepts Red, Metal and Sphere because red metal spheres happen to fulfil the function in question.

As we have seen, there are many reasons, apart from function, for classifying things together. One reason is that certain sets of properties naturally occur together--if a thing has many of the characteristics of a kestrel it is likely to have the rest, if a substance has many of the characteristics of gold it is likely to have the rest. In such cases, where sets of characteristics occur together as a matter of natural necessity, we speak of 'natural kinds'. Then again we may classify things together because a law holds of them (e.g. soluble substances) or because the same sets of laws hold of them (e.g. magnetized substances, current carrying conductors). The point I want to make here is that (except in the case of Red, Salty, etc.) we speak of a kind only if there is some reason for classifying things together as of that kind. Arbitrary classifications, such as 'red metal spheres' or Carroll's 'Colorado spruce trees between three and five feet in height situated on U.S. farms of 100 acres or more' do not constitute kinds. Consequently, where we have an arbitrary classification we have no corresponding concept. There is no such concept as Red Metal Sphere since there is no corresponding kind of thing about which one could have the capacity to make correct judgements. The same remarks apply to arbitrary disjunctive classifications; there is no concept Red or Blue Sphere, since there is no corresponding kind. I do not want to deny that there may be borderline cases where it is hard to know whether we should speak of kinds. Such cases occur in psychological investigations of 'concept formation'.

In such experiments an arbitrary collection of characteristics (e.g. designs of a particular shape, size and colour) may constitute the defining characteristics of NOGs, and if a subject can distinguish NOGs from non-NOGs then he may be said to have the concept Nog. In the circumstances of the experiment the reason for classifying the things together is simply that the experimenter counts this as correct. Thus from the point of view of the subject the classification is not arbitrary, but from the point of view of the experimenter it probably is. There is no reason beyond the experimenter's reasons for doing the experiment why the designs called "nogs" should be classified together, so that it is only in a very limited sense that NOGS can be said to form a kind. Consequently, it is only in a very limited sense that the successful subject can be said to have acquired a concept. Indeed, it is misleading to regard such experiments as experiments on concept formation at all.

Several points arise out of the account of concept possession which I have given in this chapter.

(1) To have a concept involves (except in certain special cases) having certain belief-connections, but one can only have a belief connection if one already has the concepts involved in having the beliefs involved. E.g. to have the concept Kestrel is to have belief-connections involving beliefs about birds with curved beaks, birds with long tails, etc. But one cannot have, for instance, the belief-connection "If you believe it has a curved beak, long tail, whitish underside and is hovering in one place, then you will believe that it has black specks on its wings" unless one has the concepts Beak, Tail, Hovering, Curved, Long, etc. Similarly, to have the concept Telescope is to have the belief-connection "If you believe it has a long tube with lenses at each end,

then you will believe that it is used for looking at distant objects", but one can't have this belief-connection unless one has the concepts Tube, Lens, Used For, etc. Thus having one concept involves having others, even though 'complex' concepts are not built up simply by combining 'simpler' concepts. Many philosophers would put the matter by saying that concepts exist as elements in conceptual frameworks, and in sections 6.3 and 6.4 I shall look at this notion of a conceptual framework in more detail.

(2) I have said that having a concept involves having a capacity for judging correctly whether things are of a certain kind. The question now arises of whether we can say that concepts are capacities for correct judgement. This is a matter I shall discuss in section 6.1. For the moment I shall continue to restrict the discussion to what is involved in having concepts.

(3) My account of having concepts as being a matter of having certain capacities for correct judgement leads us to inquire as to the nature of the bases of these capacities. The base of a person's capacity will be some characteristic of the person such that if he has that characteristic then he must (logically) have the capacity, and as we saw, in the case of most concepts the characteristic in question is the possession of certain belief-connections. For if he has certain belief-connections it follows logically that he will have the capacity to judge correctly whether things are of certain kinds.

We saw, in discussing capacities and dispositions in Chapter 2, that a particular capacity may have any one of several different bases. It should then be possible for one person to have a concept F in virtue of having one set of belief-connections, and for another to have the

same concept in virtue of having a different set of belief-connections. In fact, I think this is a genuine possibility, as may be seen by considering again the concept Telescope. Consider one person who has a belief-connection such that if he believes that an instrument has a certain arrangement of lenses, he believes that it will be used for looking at distant objects. Insofar as he has this belief-connection he will be able to recognize refracting telescopes when he comes across them. The belief-connection is the base of his conceptual ability. Now consider someone who does not have this belief-connection, but does have a belief-connection such that if he believes that an instrument has a certain arrangement of lenses and mirrors, he will believe that it will be used for looking at distant objects. Insofar as he has this belief-connection he will be able to recognize reflecting telescopes when he sees them. This belief-connection is the basis of his conceptual ability. Now it may be said that these two people simply have different concepts: one has the concept Refracting Telescope, the other has the concept Reflecting Telescope. This is true, but it is also true that they both have the concept Telescope, and they have this concept on the basis of having different belief-connections. Obviously the same situation will arise wherever a thing is of a kind which can exist in the form of more than one sub-kind. A person who has learned to recognize only female blackbirds (i.e. the European blackbird in which species the male and female look very different) has to some extent acquired the concept Blackbird; and so has someone who has learned to recognize only male blackbirds. Neither has an adequate grasp of the concept Blackbird, but that is not to say that they have no grasp of it. They both have, to some degree, the concept Blackbird, but their

conceptual abilities rest on different belief-connections.

There is another sort of case where two people may have the same concept, but on the basis of different belief-connections. This is where a thing exists in only one kind, yet having a full grasp of the concept involves having many belief-connections B_1, B_2, \dots, B_n . Then one person may have some grasp of the concept through having B_1, B_2, \dots, B_k and another may have some grasp of the concept through having B_{k+1}, \dots, B_n . This will often be so in the case of scientific concepts-- consider, for instance, the concept Electric Current again. The acquisition of a full grasp of such concepts can often be reached by several different routes.

(4) My account of concept-possession has made reference to recognizing, having beliefs and making judgements. I have given an account of what it is to recognize that something is of a particular kind, but have as yet said nothing about what is involved in having beliefs and making judgements. The two latter notions are, I think, closely related; I shall discuss them in the next chapter.

CHAPTER FOUR

CORRECT JUDGEMENT

4.1 Introduction

The concept Judgement is not one which has been discussed a great deal in recent analytic philosophy. Geach offers a rather complex theory of judgement in his book Mental Acts (1957), to which I shall refer later, but otherwise the topic does not seem to have claimed much attention. However, this apparent lack of interest in the concept Judgement is to some extent illusory, since several other concepts closely related to Judgement have been discussed at considerable length by contemporary analytical philosophers. Of particular relevance is the concept Belief, since the problems involved in elucidating this notion seem to be very closely paralleled by the problems involved in the case of Judgement. For example, there is the question of whether a creature must be able to formulate his belief in a language if he is to count as having that belief, and there is the question of how the concept Belief is linked with the concept Truth. It is clear enough that questions such as these arise just as much for Judgement as for Belief, and this should hardly be surprising, since it is a plausible view that a belief is a disposition to judge. Almost all contemporary accounts of Belief take this notion to be a dispositional one, the divisive issue being, rather, whether the disposition in question is a disposition to act appropriately to the truth of p, or whether it is a disposition to say that p or something to the effect that p in some language.

One objection that is sometimes raised against the view that belief is a dispositional concept is that in saying what oneself believes one does not normally take note of one's dispositions and deduce from them what it is that one believes. Other people learn of one's beliefs in this way, but it is not the way one knows, oneself, that one has the beliefs one has. This fact may lead a philosopher to think that each person has access to his own beliefs in some other way, perhaps via introspection. However, I think that this is the wrong conclusion to draw. One does not normally find out what one's own beliefs are through taking note of one's dispositions, but that doesn't mean that one finds out in some other way. One doesn't normally find out what one's beliefs are at all, one simply has them. And to have them, according to the dispositional account, is to be disposed to act or speak in certain ways.

I said that one doesn't normally find out about one's beliefs through taking note of one's dispositions. However, in special circumstances one may do just this. For instance a person P may be inclined to say that q, but someone who knows P well may object that really P believes that not-q. Confronted with this challenge P may begin to consider whether he doesn't believe not-q. He may consider whether believing P is compatible with the fact that he holds certain other beliefs, that is whether he has certain other dispositions to judge, or he may realize that he tends to do all sorts of things which are consistent with believing not-q. In such cases P may well come to the conclusion, on the basis of this evidence concerning his dispositions, that he does believe not-q. By this stage he may well have lost his inclination to state "q", although such a course of events is by no means inevitable. It is, after all, quite possible for a person to harbour incompatible

beliefs. To say that someone has incompatible beliefs is, according to a dispositional account of belief, to say that in some circumstances a person will act (or speak) in one way, but that in other circumstances he will act (or speak) in another way; there is no problem in saying that a person has, at the same time, the disposition to do x and the disposition to do something incompatible with doing x, since the conditions which activate one disposition may be different from those which activate the other disposition. In the company of one group of people a person may act appropriately to the truth of "q", whereas in the company of another group he may act appropriately to the truth of "not-q". He can't do both at the same time, of course, but at any time he may be said to have both dispositions.

I conclude that the fact that one does not normally find out about one's beliefs through studying one's dispositions is not an objection to the view that beliefs are dispositional in nature; the fact is that one doesn't normally find out about one's beliefs at all. The question remains of whether the disposition in question is a disposition to do certain things or a disposition to say certain things, or whether, as I have been tacitly assuming, both alternatives are plausible. We can say, neutrally, that a belief is a disposition to judge, but then the same question arises in the form "Is judgement a matter of speaking or acting or both?" To avoid unnecessary repetition I shall discuss the latter form of the problem, and take for granted that once we have an account of judgement, we can readily understand beliefs in terms of dispositions to judge.

4.2 The assertion account of Judgement

According to this view, to judge that *p* is simply to assert that *p*. The strongest version of this position would be that which takes assertions to be publicly observable verbalizations. Thus, on this view, to judge that *p* is to make the statement that *p* in some language. The obvious objection to this is the manifest implausibility of saying that all judgements must be overtly expressed in statements. "Men judge by the complexion of the sky the state and inclination of the day", but this doesn't mean they say anything.

A second objection, which I think is less cogent, would run as follows: It seems that only the sincere assertion that *p* is a suitable sufficient condition for a person having judged that *p*. If one is lying then in making the statement that *p* one does not judge that *p*. Yet if we try to make sincere statement the sufficient condition for judgement we encounter a vicious circularity. For then we must explain what is involved in sincere judgement, and that seems to involve saying such things as "A sincere statement that *p* is a statement which the utterer believes to be true", which presupposes an understanding of Belief and hence of Judgement (belief being understood as a disposition to judge); or "A sincere statement that *p* is a statement which expresses the utterer's judgement that *p*", which is immediately circular.

One can, I think avoid this difficulty if one gives up the quest for a sufficient condition for the concept Judgement. One can reasonably say that insincere statements or lies are necessarily the exception, not the rule. Lying can't be the rule since to lie is to try to mislead people into thinking that one believes what one says, and unless people normally expect one to believe what one says one can't hope to mislead

them by lying. Lying is inevitably an activity which is parasitic upon the normal activity of truth-telling, and it follows that if a person asserts that p then normally we take it that he judges that p. (In Austin's terminology, if someone asserts that p then he implies that "p" is true, or gives it to be understood that p is true, and he could not do this unless it was accepted that people normally tell the truth.) The important point is that a person's assertion that p justifies us in saying that he judges that p in the absence of any special reason to suppose that he is lying. Thus it could be said that assertion gives us a positive criterion (though not sufficient condition) of judgement; what is still missing is a negative criterion or, if possible, a statement of the necessary conditions for applying the concept Judgement. As we have seen, assertion is not a necessary condition of judgement and it cannot be construed as a negative criterion either. A negative criterion for the application of the concept would have to be such that if the criterion were missing there would be a presumption that the concept Judgement was inapplicable, yet it seems simply untrue to say that because a man does not say that p, there is a presumption that he does not judge that p. One cannot reasonably say that when a person judges that p he normally says that p, whereas one can reasonably say that when a person says that p he normally judges that p. We need a special explanation to account for someone not judging that p when he says that p, but we do not need a special explanation to account for someone not saying that p, when he judges that p. There is nothing unintelligible about the statement "He judged that the apples were ripe, but did not say anything", whereas "He said that the apples are ripe, but he didn't think (= judge) they were" immediately raises the question "Why did he say what he didn't

believe to be true?" (To put it in Austinian terms again: whereas in saying that p I imply that p is true, in not saying that p I do not imply that p is false--except in special circumstances where my silence is specially significant).

What we have established so far is that assertion is a positive criterion of judgement, but that lack of assertion is not a negative criterion. What we want to know is what would count as a negative criterion. What is it that, if it is missing, creates at least the presumption that no judgement has been made? It is not overt assertion, but some philosophers, such as Geach maintain that it is covert assertion, or, as Geach puts it--following Aquinas--"saying in the heart".

I do not have space to consider Geach's account of judgement in the detail it deserves, but something should be said about it if only because it is almost the only contemporary theory of judgement available. The main points of the theory are that

(1) A judgement is a relation of 'Ideas'.

(2) An 'Idea' consists in a person saying in his heart something corresponding to a word or phrase in English, or any other language (p. 99). An 'Idea' is the exercise of a concept in judgement (p. 53).

Geach writes of the judgement "Every knife is sharper than every spoon": "James' act of judgement consists of his Idea of every knife standing in the relation § (sharper than) to his Idea of every spoon." (p. 54) Also that "Smith's Idea every man consists in his saying-in-his-heart something to the same effect as 'every man' (which let me repeat, need not consist in his having mental images of these or other words). I shall say 'mental utterance of' as an abbreviation for 'saying-in-his-heart something to the same effect as'; thus Smith's Idea every man

is Smith's mental utterance of 'every man'." (p. 99)

Geach's account of the relation $\{$ (sharper than) is more complicated, and in fact he does not complete the account (see his p. 101); I shall leave this matter aside and concentrate on the notion of an Idea, which is just as crucial to his theory. A judgement, according to Geach, is a relation of Ideas. If we wish to know what exactly Ideas are, we are told first that an Idea is an exercise of a concept in judgement, but of course that does not help us much unless we already have an account of Judgement. Geach's other, and from our point of view, more significant assertion, is that an Idea is a matter of "saying-in-the-heart something to the same effect as 'x'", which may be abbreviated to "mentally uttering 'x'".

It seems to me that Geach's notion of saying-in-the-heart is far from being self-explanatory. I can think of two very different interpretations of it, which are as follows. (1) To say in one's heart something to the same effect as "x" is to say to oneself some word or phrase which is synonymous with the word (or phrase, etc.) "x". To say in one's heart something to the same effect as "Some knife is sharper than every spoon" would be to say to oneself "Some knife is sharper than every spoon", or a sentence equivalent to this. People do say things to themselves, and it is clear that only a person who can say things can say things to himself. The question is whether saying things to oneself is the same as judging. If one says to oneself something to the same effect as "The apples are ripe" one will normally have judged that the apples are ripe. (We may note that saying "p" to oneself is not quite a sufficient condition for judging that p--one could repeat to oneself "He's a liar, he's a liar" while not genuinely judging him to be a liar.

One might say this to oneself because one very much wanted it to be true). However, what we are looking for is not a positive criterion but a negative criterion for judgement, and it is not at all obvious that failure to say to oneself "The apples are ripe" entails (or implies) the absence of the judgement that the apples are ripe. For one may look at the apples and act appropriately to their being ripe (e.g., by eating some, or putting them in boxes marked "Ripe", but not in boxes marked "Unripe") without saying anything to oneself.

Whether Geach would regard this sort of case as an objection to his theory I do not know. I suspect not, since he says at one point (p. 80): "But oratio recta can be used metaphorically to report what someone thought, 'said in his heart' (without, of course, implying that the thinker had the quoted words in his mind)....", and, in a passage I quoted on p. 132: "...his saying-in-his-heart something to the same effect as 'every man' (which, let me repeat, need not consist in his having mental images of these or other words)." The qualifications in parentheses in these passages seem to be intended to rule out the interpretation of 'sayings-in-the-heart' as ordinary sayings to oneself, i.e. bits of sub-vocal speech. Rather, according to the first quotation above, to say in one's heart that every knife is sharper than every spoon is to think that every knife is sharper than every spoon. But if this is how we are to understand sayings in the heart we have come full circle, since to think that p is either to believe that p or to judge that p, and it is these notions that we were trying to explain. Unless I have missed some crucial point in Geach's theory, it seems that his "saying in the heart" formulation is simply an alternative form of words for "judging", although it may carry with it the suggestion that a person can't say in

his heart that p unless he can say that p in some language. Whether this suggestion, that only language users can judge, is plausible, is something that I shall discuss in my next chapter. For the moment, however, "assertions in the heart" seem to be of little help to us.

4.3 The acting-as-if account of judgement

People sometimes say that p although they do not judge that p . Statements can be insincere, and because of this we are inclined to say that "actions speak louder than words". This thought leads to the idea that the real test, or at least an important test, of whether a person judges that p lies in how that person behaves. Suppose that someone says the rope bridge across the ravine is quite safe, but even though it is greatly to his advantage for him to cross by means of it, he refuses to do so. In such a case we at least suspect that he does not really judge the bridge to be safe. We do perhaps allow for cases of a person judging that p but being unable to bring himself to act appropriately, but such cases are highly problematical. If the man says with every appearance of sincerity that the bridge is safe, yet refuses to cross himself, we have conflicting evidence concerning his judgement. We may say that he judges (irrationally) that it is safe for others to cross but not for him, or that he makes contradictory judgements, but neither of these interpretations contradicts the view that his behaviour clearly reveals a judgement on his part that it is unsafe for him to cross.

This sort of case may lead us to say that a person judges that p if and only if he acts as if p were true. On this view the frightened man acts as if the bridge were unsafe, and it is this action that reveals or constitutes his judgement that it is unsafe. However, this analysis

won't do as it stands. To borrow an example from Price (Price 1969, p. 263) King Canute acted as if he could control the sea, but he did not judge that he could control the sea. On the contrary, his aim in acting as if he could control the sea was to show his courtiers that he could not. In general, if a person is said to act as if p were true this indicates that he does not judge that p. The sort of case where a man acts as if the bridge is unsafe is where he judges it to be safe but acts as if it were unsafe in order to mislead others. There are other senses of "acting as if", such as the sense in which an actor on the stage playing, say, Faustus, acts as if he could conjure up the Devil. This sort of acting is different from Canute's, and both are different from the acting as if that is involved in pretending that one believes something. However, in none of these cases is acting as if something were the case the same as judging that it is the case.

Now this particular difficulty with the acting as-if account is fairly easily overcome. Instead of saying that a person judges that p if he acts as if p were true we can say that he judges that p if he acts appropriately to the truth of "p".* The frightened man at the bridge does not act as if the bridge was unsafe but he does act appropriately to the bridge's being unsafe. At least, we can say that he acts appropriately if we can make certain plausible assumptions about his aims, if we can assume, that is, that he does not want to perish in the gorge.

*Braithwaite changes his account of Belief in this way between his (1932) and his (1946) papers, presumably for the reason I have discussed.

Thus in explaining what is meant by appropriate to the truth of p it seems that we need to make reference to the person's goals or aims. The question is how, exactly, this is to be done. The following might be suggested (cf. Braithwaite 1946, p. 263): A person acts appropriately to the truth of p if and only if he acts in a way which satisfies or tends to satisfy his desires if p is true, and which frustrates or tends to frustrate his desires if p is false. The frightened man at the bridge turns back and thus frustrates his desire to cross, since "the bridge is unsafe is false. Hence, on this view, we can say the man judges the bridge to be unsafe. On the other hand people who, wanting to reach the other side, cross by the bridge satisfy their desire, since "the bridge is safe" is true. Hence, on this view, we can say that they judge the bridge to be safe.

In spite of its initial plausibility, however, such a view is radically defective.* Suppose that, unknown to anyone, it is only safe to cross by keeping to the right hand side of the bridge. If one grasps the ropes on the left hand side they will snap and one will be plunged into the ravine. In these circumstances it will be appropriate, for someone who wishes to cross, to keep to the right hand side. By the same token it will be appropriate for someone who wants to die in demonstrating the bad condition of the bridge, to keep to the left hand side. Now two people come to the bridge, one of them having the one aim, the other the other. The first keeps to the right hand side and is soon across. He has acted in a way which satisfies his desire since "It is safe to cross on

*See e.g. Chisholm (1955/6) and (1957), Ch. 11.

the right" is true, and should therefore be held to have judged that it is safe to cross on the right. (Note also that his desire would have been frustrated if "It is safe to cross on the right" had been false.) The other man keeps to the left side and is plunged into the river. As a consequence people realize how unsafe the bridge was. This man also has satisfied his desire since "It is unsafe to cross on the left" is true, and his desire would have been frustrated if this statement had been untrue. Thus according to the account we are considering this man judges that it was unsafe to cross on the right. Now the difficulty is, of course, that neither of these conclusions about what the men judged really follows from the account of what they wanted and what they did. It may have been quite accidental that the first man kept to the right of the bridge and the second to the left. Neither of them may have known anything about the decayed state of the ropes on the left hand side.

There is another closely related difficulty* in the view that judgement is 'action appropriate to truth': This view analyses Judgement in terms of Action, but it is difficult to give an account of Action without bringing in Belief. A person's actions, as distinct from those aspects of his behavior which do not count as actions, seem to be just those things he does because he believes they are necessary for his goals. Thus stepping onto a bridge is an action but sneezing is not. Things done involuntarily are not actions, but they seem to be irrelevant in assessing what a person believes, or judges. Thus by "action appropriate to truth" we must mean action, not behaviour in general, but if the notion Action involves the notion Belief and if the notion Belief

*Cf. Griffiths (1967) p. 128

involves the notion Judgement, then we can't without circularity explain Judgement in terms of Action Appropriate to Truth.

It seems clear that there is something fundamentally wrong with this sort of account of Judgement. The underlying defect, I think, is with the notion of appropriateness that is employed. In some sense it is undoubtedly true that judging that p is an act appropriate to the truth of p . In some sense a judgement is just that sort of thing which ought to be true. Being true seems to be the primary standard set for judgements, and being false is the most obvious way in which a judgement can be defective. However, the sense of "appropriate" involved here is not directly linked with the judger's goals. Actions embodying true judgements do (we hope) tend to lead to the satisfaction of one's desires more often than actions embodying false judgements, but it is not the success or failure of such actions that is the criterion for the truth of the judgement. To suppose this would be to adopt a pragmatic theory of truth, with all the difficulties that that involves.

4.4 Judgement and correction

Since each of the above accounts of judgement seems unsatisfactory I shall offer an account of my own. I think the crucial point to notice about Judgement is that when a person makes a judgement he opens himself to the possibility of criticism of a particular sort. If his judgement is expressed in language it may be open to criticism on account of its long-windedness, its clumsy formulation, its lack of tact, etc., but such criticisms are irrelevant to the judgement qua judgement. The criticism that the judgement is false, however, (or that it is incorrect as regards the facts, or does not correspond to the facts) is on quite a different

level. When a judgement is made--whether or not it is expressed in speech or overt behaviour--the judger has at least opened himself to the possibility of this sort of criticism: If he judges that p he is wrong or incorrect if it is not a fact that p; and if he judges that not-p he is wrong or incorrect if it is a fact that p. Now I want to suggest that these are not casual bits of information about judgements but constitute what it is to judge. One way of putting it would be to say that to judge is to render oneself liable to correction in the light of the facts. How one does this is immaterial--one may formulate a judgement in words or express it in one's behaviour or think it to oneself; the point is that if what one does is judging then, and only then, one will be wrong if the facts are such-and-such.

It might be objected that such a view cannot apply in the case of e.g. moral and aesthetic judgements, since the facts of a situation cannot show that one has made a wrong moral judgement, say. For instance it may be urged that the fact that A killed B, quite deliberately, in order to stop B from blackmailing him, cannot itself show that the moral judgement "A murdered B" is a correct judgement. We have already seen (in section 3.3) why this is so: the reason is that the application of the concept involves not only such things as intentional killing, but also that the killing in question is morally wrong. If one regards killing a blackmailer as morally justifiable--which some people might--then one can't apply the concept Murder to such a case. However, if one regards killing a blackmailer as morally wrong, then one will regard the judgement "A murdered B" as a correct judgement. Now all I wish to claim is that if X does regard "A murdered B" as a correct judgement, then an alternative way of putting the matter would be to say that so

far as X is concerned it is a (moral) fact that A murdered B. I am suggesting that Fact and Judgement are correlative notions, so that if someone refuses to say that there are moral facts then he cannot maintain that when people say things like "It would be wrong to kill someone just because he is blackmailing you" they are judging. There are non-cognitive theories of morality, but people who adhere to them do not deny that there are moral facts while accepting that there are moral judgements. They deny--or should deny--that there can be genuine judgements in the field of morality; instead what one has is expressions of one's feelings, or attempts to persuade others to do as one does oneself, or universalizable imperatives, etc.

One important consequence follows. It is not possible, I think, that my account of concepts can be generally correct--so that it applies in the field of morality as well as in other fields--and that a non-cognitive theory of morality can be correct. For if my account of having concepts is generally correct it means that all cases of having concepts can be regarded as cases of having capacities for correct judgement. Thus if there are moral concepts there must be such things as moral judgements, and, I have said, if there are moral judgements there are moral facts. A non-cognitive view of morality combined with my account of having concepts would lead to the conclusion that there is no such thing as 'having a moral concept', that it makes no sense to speak of moral concepts. And that conclusion seems absurd.

Objection may still be raised to my speaking of moral facts on the grounds that where there are facts there must in principle be ways of settling disputes about the facts, and that in the field of morality there appear to be no such ways available, at least when one comes down

to matters of moral principle. However, this objection raises the large question of whether there can be genuine objectivity in moral matters, and I cannot go into that here.

I have been saying that to judge is to be wrong if the facts are other than such-and-such. What I must do now is to say something about what it is to be a fact and what it is to be wrong. Let us consider the notion Being Wrong first.

It is clear that one's actions can be wrong with respect to several different standards. An act can be wrong from the point of view of the law or from the point of view of etiquette; it can be morally wrong or wrong in that it is clumsy and inefficient. In all these cases, I maintain, we are assessing the act with regard to a factual standard: if it is a fact that (in a certain society) a certain act is impolite or illegal, then a member of that society acts wrongly if he performs the act. If it is a fact that performing an act in a certain way is inelegant or ineffectual then one acted wrongly in performing it in that way. Actions are judged according to many different standards but, I want to maintain, they are all--in a sense--factual standards, and in acting in such a way as to be open to correction in the light of any such factual standard is to judge. It is by the standard of factuality that we assess judgements qua judgements, and in so far as a judgement does not measure up to the standard it is unsatisfactory as a judgement. Of course, correctness with respect to the facts is not the only standard by which judgements qua judgements can be assessed; another is rationality or reasonableness, but this latter standard does not apply to all judgements. The judgement that this bridge is unsafe is the sort of judgement which is open to criticism on the grounds of rationality as well as factuality,

but my judgement that I have a pain in my leg is not. The question of whether this judgement is a reasonable one to make in the circumstances doesn't arise, because one does not base judgements of this sort on anything. Where a judgement is of a sort which cannot involve having evidence for its truth it cannot be reasonable or unreasonable, but it can, and must, be factually correct or incorrect.

Let us consider further what is involved in being correct or incorrect. Suppose we are investigating a species of animal and we want to know not only what these animals are capable of doing, but also what they are capable of doing correctly. At first sight it may seem that there is no distinction to be made here. If these animals can swim and climb trees then that is a fact about their behaviour; what could we be asking if we asked "But can they do these things correctly?"

If we are going to speak of animals doing things correctly or incorrectly it is clear that we need to introduce some standard by which their behaviour can be judged. Consider a simple case of sorting things according to their colour. Monkeys can be taught to do this, and when they have learned we can properly say that they have the capacity to sort things correctly by colour. They can now be said to make mistakes and be wrong about where a particular object should go. Before their training they might perhaps play with coloured blocks and place some in one box, some in another, but at that stage one could not say that a monkey who placed blue blocks in the red box was acting incorrectly. We can only say that if we are thinking in terms of a standard of correctness with which the animal is familiar. Now what is it for an animal to be familiar with a certain standard of correctness? It is obviously not enough that it should usually behave in the way that the

standard prescribes. A monkey that puts the red blocks in the red box and the blue blocks in the blue box, and so on, isn't necessarily familiar with any standard of correctness. He may just enjoy putting things together in that way, or he may have put them together quite accidentally. If we are to say that he is familiar with a standard of correctness in sorting coloured blocks he must have some awareness that it is wrong to do it that way, right to do it this way. And such awareness is surely linked with an awareness that that way will be frowned upon or discouraged by others, whereas this way will be smiled upon or encouraged by others. The training process by which he comes to be familiar with a standard of correctness is precisely a process in which there is encouragement of some sorts of activities and discouragement of others, and it is surely as a result of this sort of training that an animal acquires whatever knowledge of standards of correctness it has.*

An important consequence is that only animals capable of being encouraged/discouraged by others are going to be able to acquire any knowledge of standards of correctness. One way of putting this would be to say that only social animals can have any knowledge of standards, but the notion of a social animal is a very vague one. It may be worthwhile to consider for a moment the different sorts of social relations that can exist between animals, in order to make it quite clear that the sort of social interactions with which we are concerned are of a very special sort. Ethologists distinguish such things as the following:

*Cf. D. W. Hamlyn (1974) on the role correction plays in the acquisition of the concepts of truth and judgement.

(a) There is a wide range of social behaviour in animals that is largely instinctive. That is, the performance of certain movements or the showing of certain markings by one animal 'releases' certain behaviour in another animal. Given suitable circumstances such as the fact that it is spring (and that hormone levels are therefore suitable) the presence of another red-breasted bird releases attack behaviour by a male robin. The released behaviour is of an automatic stereotyped sort, and can be released sometimes merely by the presentation of a bunch of red feathers. Such built-in reactions by one member of a species to another need to be understood in terms of their biological function (in the present case, probably, the spacing out of pairs of robins over the available terrain, which will enable each pair to obtain sufficient food for their young). One could say that the response of one male robin to another in spring is 'correct', but by this one could only mean that it is biologically functional, i.e. an expression of an inherited disposition which is conducive to the survival of the species. But it is not in this sense of "correct" that judgements can be said to be correct. A correct judgement is not necessarily conducive to the survival of the species.

(b) The behaviour of one animal can influence the behaviour of another simply by bringing the attention of the latter to something that it would not otherwise have noticed. "Lorenz (1935) found that when a flock of ducks was confined in a pen, at one place in the fence of which there was a small gap, the successful escape of one bird did not lead to any general improvement in performance by the others. If, however, one duck happened to be near to or following close behind another at the time of its escape, this had the effect of attracting the bird's

attention to that particular region of the fence and so indirectly helped it to solve the problem." (Thorpe, 1963, p. 134).

Cases of this sort have been termed "local enhancement" by ethologists. They are typically cases where there appears at first sight to be evidence of one animal imitating another, but where on closer examination it turns out that there is merely direction of attention which could easily have been produced without the presence of another animal at all.

(c) Another kind of case that looks like imitation but can hardly be classed as such is that falling under the heading "social facilitation". Yawning provides a well known example in humans; in general social facilitation occurs where an instinctive behaviour pattern in one animal releases similar behaviour in another animal. Cases of this sort are simply a special case of category (a). That is, they are cases where an innate pattern in one animal releases an innate pattern in another; the special thing about social facilitation being that the released pattern is the same as the releasing pattern.

(d) Presumably conditioning plays a large role in the social interactions of animals. The behaviour of one animal can be conditioned to the behaviour of another just as well as to any other kind of event.

Such a classification of animal social interactions is only a rough one, but it will be sufficient for our purposes. The question to be raised is where the notion of correct behaviour can be fitted into such a classification. It seems that such a notion is out of place in connection with instinctive behaviour. The only senses in which such behaviour is 'correct' are those in which "correct" means (a) biologically functional" or (b) "appropriate to the situation given the

animal's needs". (These are not quite the same since biological function is understood in terms of the reproducing species rather than in term of the needs of the individual animal).

The notion of correct and incorrect behaviour seems out of place, too, in the cases of local enhancement and social facilitation. These patterns of social influence may often be biologically functional, but are not classifiable as "correct" or "incorrect" in any other sense.

We turn to conditioned reflexes. If an animal has been conditioned to salivate when a bell rings should we say that it responds correctly when the ringing is followed by salivation? Here I think the answer must be: Not unless we are thinking in terms of the purposes of an experimenter who counts salivation as the criterion of a 'correct' response. In the context of a psychological experiment the salivation can be regarded as correct, but if the conditioning has taken place 'accidentally' (i.e. outside any context of human design), then the question of correctness doesn't arise. The salivation occurs when the ringing occurs, and that is all. Thus unless we are thinking in terms of the aims of an experimenter, or perhaps in terms of the survival value of a conditioned response, we cannot regard conditioned behaviour as the sort of behaviour that can be 'right' or 'wrong'. And the same applies when the behaviour of one animal happens to be conditioned by the behaviour of another. Replacing the bell by some sound made by another animal does not alter the situation from the point of view of whether the notion Correctness is applicable.

Having run through this list of ways in which animals can interact, we may be left with the impression that there is nothing left of my contention that only animals that can be encouraged and discouraged

by others can acquire any knowledge of standards. For, what is the difference between an animal that can be encouraged/discouraged in such a way that he can sort out coloured blocks, and an animal which can be conditioned to sort out coloured blocks? Of course, to put the matter this way is already to assume that there is little difference between conditioned behaviour and learned action, but making the verbal distinction between these two implies that there is a real difference, and we need to know what it is. I think that the difference is a real one and that there are ways of finding out whether an animal has been conditioned to respond in a certain way or whether it has learned to sort colours correctly. The difference lies not so much in what sort of training the animal is subjected to, but in how the animal, being the sort of animal it is, reacts to the training.

To condition a response to a stimulus is to bring it about that when the stimulus appears the response will appear, or at least that the probability of the response will increase. Thus if an animal has been conditioned to place red things in red boxes, blue things in blue boxes, etc., what has happened is that it has acquired a particular set of dispositions to respond to coloured things. In the same way, it is conceivable that one might condition a child to say "pentagon!" whenever he is presented with pentagonal objects. Learning to classify things correctly, on the other hand, involves more than acquiring a disposition to respond in a particular way. For any correct way of classifying things is a way that is correct for anyone. If we regard it as correct to classify together the red blocks, the blue blocks, etc., this means that such a way of responding is right not just for certain selected people but for anyone. It follows that

(1) If I have learned that a certain response is correct, rather than been conditioned to respond in a certain way, I will know that it is wrong for anyone to do things in a different way. If I have learned it is correct to call certain figures "pentagons" then I will not merely respond to them with the word but will object to others calling them "squares" or "triangles", and, given the opportunity, I will tend to correct them. My inclination to object when others get it wrong is as much a part of my having learned the correct thing to do as is my inclination to behave in the correct way myself.

(2) If I observe someone else who is learning or has learned the correct response, then I will know not only what it is correct for him to do, but what is correct for anyone to do, and hence what is correct for me to do. If I have learned, from observation, that others are right when they call things "pentagons", then I have learned that it is right for anyone to call these things "pentagons", and hence that it is right for me to call them "pentagons".

In short, if as a result of learning one can correct others, or if one can learn through observation and imitation of others, then one's learning goes beyond mere conditioning. To condition a response to a stimulus S is to bring it about that (there is an increased probability that) the organism will emit R when S occurs. But nothing at all follows from this about how the organism will respond if it observes another organism which does not emit R when S occurs, or whether it could have been trained to emit R when S occurs, through allowing it to watch the activities of other organisms.

What I am suggesting is that if we wish to know whether an animal has learned the correct thing to do or whether it has simply been

conditioned, we should consider whether it is the sort of animal that can learn through observation and imitation and/or whether it is the sort of animal that can, to any extent, 'teach' others what it has learned. Examples of teaching in the animal world are probably rather rare*, although there appears to be some evidence of it in the way a mother cat helps her young to catch mice, and in the way monkeys sometimes help their young to walk. Imitation, or 'observational learning', on the other hand, is indubitably present at least among the primates, and provides clear evidence that these animals are of a kind which learn what it is correct to do. I would emphasize that once we know what an animal is of this kind, then a whole new light is thrown on its behaviour. It becomes likely that a great deal of its learning is genuine learning rather than conditioning, so that it will not be implausible to think of its behaviour as manifesting judgements, and recognition that things are of certain kinds. Given what we know about primates' powers of imitation there seems no reason at all why we should not speak of them as judging whether an object is edible, or recognizing that a stick is too short to reach a banana. Of course we must be careful here. A monkey can hardly judge that a banana is a fruit, since in order to have the concept Fruit one must have certain beliefs about the origin of things such as bananas, which a monkey is unlikely to have. But I see no convincing reason for denying that it can have concepts such as Sweet, Yellow, Food, etc.

To sum up, the contexts in which we speak of correct behaviour are contexts in which there exist standards of correctness, which may be set by us as trainers, or which we may discover to exist among groups of

*See Barnett (1967), p. 282.

social animals where there is some degree of imitation and/or teaching. We discover such standards through noting that these animals interact with each other in these special ways--they learn what is to be done through observing others and/or can be taught and teach others. A standard 'exists' only where there is this sort of background of social life and correction.

We can now say that correct behaviour is behaviour that is performed in accordance with a standard. Such behaviour is not only behaviour that coincides with what the standard prescribes, but is behaviour that is open to correction in the light of the standard. In other words, the behaviour of an animal must be correctable--the animal must be teachable--if its behaviour is to count as correct or incorrect.

We may now return to our account of judgement. To judge, I said, is to act in a way which is correct if and only if the facts are such and such. A judgement that p is an act which is correct or incorrect depending on whether p is a fact or not. Correct judgement is correct behaviour of a special kind--the kind which is assessed for correctness in terms of the standard of the facts. The facts set the standard for judgement in the sense that we count a judgement as correct if and only if the facts are such and such. In order to complete our account of Judgement we should now say something about the concept Fact, since this is the remaining unexplained notion in the definition "To judge is to be correct or incorrect, depending on the facts". However, as we saw in Chapter 3, Fact is a concept which belongs to the group of formal concepts, and there are peculiar difficulties in giving any account of these concepts. Consequently, I shall not pursue my account of judgement any further than this. Presumably any account of judgement must end somewhere, and

formal concepts such as Fact seem to constitute a natural stopping point. At least we can be sure that if any further progress is possible it will be extremely difficult.

If we now join up our account of judgement as "being correct/incorrect in the light of the facts" with our account of having a concept as "having the capacity to judge correctly whether things are of a certain kind," we arrive at the conclusion that to have a concept is to have the capacity to be correct with respect to whether things are of a particular kind. (We note that the formal concept Fact has now disappeared, but it has been replaced by two other formal concepts, Thing and Kind.) In moving from the formula that having concepts is a matter of having capacities for correct judgement to the formula that it is a matter of having the capacity to be correct, we have incidentally removed one possible objection to my account of concept possession. For it could well have been objected that one can't possibly explain what it is to have a concept in terms of what it is to judge, since judging itself involves having concepts. The point is that unless one has some concept of, say, a kestrel (unless one has the concept to some degree) one can't judge that the bird before one is a kestrel. Suppose I have no concept of a kestrel, in the sense that I have no familiarity with birds at all, because I have never encountered or read about such creatures. Someone asks me "Is this a kestrel?" while pointing at a certain object. Now the question itself may, in a very limited sort of way, give me some grasp of the concept Kestrel--for it will suggest to me that kestrels are birds, but if that is all I know I cannot reasonably be said to have the concept Kestrel. I can guess that the thing indicated is of a kind which falls under a bird concept corresponding to the word "kestrel", but I cannot guess that

it is a kestrel, in the way that someone who has the concept can guess that a distant bird is a kestrel. A fortiori I can't judge that it is a kestrel if I don't have the concept.

It seems then that any account which tries to explain what it is to have a concept in terms of what it is to judge, cannot be entirely satisfactory. For, oddly enough, it looks as if a person counts as judging only if he has the capacity to judge correctly. Such a paradoxical outcome suggests that Judgement is a concept of the sort I called (in Chapter 2) a 'disposition-manifesting event concept', or, as we should say in this case, a capacity-manifesting event concept. That is, there is a capacity to X, and if someone Xs as a result of having that capacity then such Xing counts as judging, but otherwise it does not. The question is "What is X?", and the answer, I suggest, is "being right". For if we make this substitution for X we can say that someone has the concept F if and only if he has the capacity to be right about whether things are fs; and that he judges correctly that something is an f if and only if he is right that it is an f as a manifestation of the capacity to be right. This allows for the possibility that a person can be right that something is an f without having the concept F, which is all to the good, since in learning a concept one is often right or wrong several times before one acquires the capacity to be right concerning whether things are fs.

CHAPTER FIVE

CONCEPTS AND LANGUAGE

5.1 Introduction

In the previous chapter I concluded that the phrase "having the concept F" should be understood as meaning "having the capacity to be right with respect to whether things are fs". Anyone who has the concept F will also have the capacity to judge correctly whether things are fs, since a person judges correctly that a thing is an f if and only if he is right about its being an f through having the capacity to be right about whether things are fs. Further, according to my account of the connection between recognizing and judging in Chapter 3, anyone who has the capacity to judge correctly whether things are fs will have the capacity to recognize whether things are fs, since a person recognizes that a thing is an f if and only if he has the capacity to judge correctly that it is an f through being in a position to judge correctly whether things are fs. The links between the concepts Concept, Judgement, Recognition and Being Right are so close that what we have here is not a set of three different accounts of what it is to have a concept, but one account that can only be fully explained in terms of the relationships between these concepts. As we saw in Chapter 4 it is more satisfactory to define "having a concept" in terms of "having the capacity to be right", but once we have done this it follows that where and only where there is concept possession there is the capacity for correct judgement and for recognition. I hope thus to have shown how accounts of concept possession in terms of recognitional capacities and judgemental capacities are compatible.

In the present chapter I want to consider briefly how another account of concept possession is related to the account I have given.

The account in question is that which holds that to have a concept is to be master of the intelligent use of a particular piece of language. For instance, according to this view, to have the concept Kestrel is to be able to use correctly the word "kestrel", or a synonym, or an equivalent word in another language. It is clear, I think, that that this linguistic account of concepts can be regarded as a special case of my own account. It may be obtained by limiting the judgements in my account to verbal judgements, so that one obtains the formula that to have the concept F is to have the capacity to judge correctly, using language, whether things are fs. (This is not quite the whole story, since there are concepts such as Event or Negation that easily fit into the linguistic account, but do not, as we have seen, fit so easily into my account. As I shall explain presently, I do not want to be committed to the view that absolutely any concept can be had by someone who lacks the appropriate linguistic capacity). The basic issue between my account and the linguistic account of concepts in effect boils down to the issue of whether judgements can be made without language. I have said in Chapter 4 that one does not need to speak or write in order to judge--that seems clear enough; and I also said that judgements cannot be understood as 'sayings in the heart', since this phrase is either a mere alternative form of words for "judgements", or else does not pick out the same class of events. However, in view of the popularity of linguistic accounts of concepts I shall in this chapter enlarge further on the difficulties that face any linguistic account. Some of these difficulties can be listed as follows.

5.2 Difficulties with the linguistic view of concepts

(1) Cases of aphasia. If the linguistic account is correct

then a man struck with aphasia* who can still play cricket and chess, no longer has the concepts involved in these games, which seems absurd. Proponents of the linguistic view, such as Geach, try to avoid this problem by saying things such as "the central and typical applications of the term "having a concept" are those in which a man is master of a bit of linguistic usage; we can then reasonably extend the term to cases sufficiently like these, e.g. where the man can play 'intellectual' games such as bridge and chess". (Geach 1957, p. 13).

The difficulty here is to know what is to count as 'sufficiently like'. In what way must an activity be like language in order for it to reveal the possession of concepts? Must it be an 'intellectual' activity like chess? -- This hardly seems right, for the possession of concepts is surely essential in playing cricket or baseball, and these are not normally classified as 'intellectual' games.

*The general term "aphasia" covers several different disorders. Total loss of verbal ability apparently is very rare, but cases do arise where speech becomes restricted to a single word such as "Yes" or "No". (Critchley 1970, p. 8). Critchley suggests the term "Monophasia" to cover such cases. Aphasia, as the term is ordinarily understood, may or may not involve the use of language in writing: "Agraphia" is sometimes used to cover cases where writing inability is aphasic in nature, i.e., is clearly a loss of linguistic ability rather than due to some other cause, such as physical disease of the muscles, etc. "Alexia" covers the aphasic inability to read, and then there are more specific aphasic disorders such as the aphasic inability to type, the aphasic inability of a blind person, who has learned Braille, to interpret any longer the dots which he feels. (Critchley, 1970, p. 331). For our purposes the phenomena of aphasia constitute merely an illustration of a philosophical point, rather than any proof of a hypothesis. It is not of any great philosophical interest whether a total aphasiac can or cannot play chess, for instance; the point is that there is nothing contradictory in supposing that he could. However, reference to actual disorders or even case histories in the aphasia literature may be of value in driving home a philosophical point. For what has been coherently described certainly can be so described.

It is sometimes said that the existence of aphasia cannot show that concepts can be possessed quite independently of the cognizer having a language, since, after all, the aphasiac has at one time learned a language. He has learned to categorize the world via learning a language, and, it may be suggested, he could not have done so without learning a language. However, this objection can't possibly show that there is an essential connection between having concepts and possessing a language, since it rests on an assumption that is empirical in nature, i.e. that a person couldn't acquire concepts except via learning a language. The objection grants that an aphasiac still has certain concepts, and this involves granting that one can identify conceptual behaviour independently of identifying linguistic behaviour. The only question remaining is the empirical one of whether concepts could be acquired without at the same time learning a language. Recently evidence has accumulated to show that this is indeed possible, and this brings us to the second sort of example that provides difficulties for the linguistic account of concepts.

(2) In the last fifteen years or so a considerable amount of work has been done on the cognitive development of deaf children*. Such children normally have only a very slight command of language in the pre-school period, i.e. they have a repertoire of from ten to fifty intelligible words, practically no knowledge of syntax, and are normally unable to read or to lip-read. If language learning were essential for the development of concepts one would expect the cognitive development

*See, e.g. Lenneberg, (1967), Furth (1966), Rosenstein (1961).

of these children to be radically impaired. However, there is little evidence that this is so. That there should be differences between deaf and hearing children in the cognitive field is to be expected, since the deaf child is cut off from a large store of information normally imparted by adults. Such differences certainly exist, but the point is that there is little evidence of the radical difference in conceptual ability which would be expected if the learning of concepts depended essentially on language learning. On classificatory tests such as the Leiter International Performance Scale deaf children perform as well as normal children. According to Lenneberg, deaf pre-school children "love make-believe games; they build fantastic structures with blocks or out of boxes; they may set up electric trains and develop the necessary logic for setting switches and anticipating the behaviour of the moving train around curves and over bridges. They love to look at pictures, and no degree of stylizing renders the pictorial representation incomprehensible for them, and their own drawings leave nothing to be desired when compared with those produced by their hearing contemporaries. Thus, cognitive development as revealed through play seems to be no different from that which occurs in the presence of language development". (Lenneberg, 1967, p. 362-3).

(3) Consider now cases where a person must be regarded as having had a concept at an earlier time, on the grounds that at a later time he finds that there is a word which corresponds exactly to that concept. For example one may be familiar with certain sorts of trees by their general appearance, the sort of leaves they have, the sort of fruit they bear, etc., and only later learn the name of these trees. It is no argument against this to point out that a person in this situation

will usually be familiar with the words "tree", "leaf", etc., since the point is that he is not familiar with "oak", "ash", etc. Nor is it a valid objection that such a person could invent names for the trees--if he is a language user this is no doubt the case--the point is that he is not master of 'the relevant piece of linguistic usage'. However, more interesting examples can be found than this. Consider a self-taught mechanic who has learned a lot about engines through taking them to pieces and seeing how they work. His possession of concepts such as Valve, Piston or even Carburetor may be revealed in his non-linguistic behaviour, in his readiness to accept certain substitute parts but not others, his ability to correct the mistakes of others in putting engines together, and so on. Later he may begin to read about engine maintenance, and discover that there are words corresponding to each of his concepts, and this will help him in communicating his knowledge to others. However, he had the concepts before he knew the words. Again, it is no objection to this example to say that the mechanic might have been able to give (complicated) descriptions of valves and pistons in words; it is possible that he might, but it is equally possible that he might not. It is quite plausible to suppose, for example, that when people ask him for verbal descriptions he gets impatient and shows them what's what. Some people might claim that this situation, where a person knows what carburetors are, but cannot put his knowledge into words, is impossible, but there is no reason to accept their view. And even if it were contingently true, this would not show that logically a person must be master of a piece of linguistic usage if he is to have a concept. The philosophical question of whether people can have concepts without language is not an empirical one; it is a question of whether we can

intelligibly describe situations where it would be correct to say that a person has a concept, but does not have the corresponding linguistic competence.

(4) Animals. A linguistic account of concepts tends to lead to the conclusion that animals do not have concepts. For although some species of animals (e.g. bees and baboons, to take two quite different sorts of case) are often said to have a kind of language, it is generally accepted that it is not those kinds of language which are relevant. Many psychologists, on the other hand, see nothing odd in studying the 'acquisition of concepts' by animals, since for them acquiring a concept is usually taken to mean acquiring a disposition to make discriminatory responses. Now it is clear that this field of animal psychology is full of difficulties, and prima facie it is just not at all obvious whether we should speak of animals as having concepts. Ultimately, whether we decide for or against their having concepts will depend on what we understand by "having a concept". However, the fact that the linguistic theory of concept-possession rules out the possibility of animal concepts seems to me to be a point against it. For if, as many would agree, having the concept F can be interpreted, vaguely, as knowing what fs are, it seems an extreme view to suggest that a monkey, for example, has no concept of a banana, or of a tree. It may be granted that a monkey can't have our concept Banana--it can't, as I said, have this concept unless it has the belief-connections involved in having our concept Fruit--but, up to a point, I think, it knows what bananas are and what trees are. Geach argues that "the life of brutes lacks so much that is integral to human life that it can only be misleading to say that they have concepts like us--as misleading as it would be to say that men have tails and women

lay eggs." (Geach 1957, p. 17) Yet while it is obviously true that there are great differences between the life of human beings and that of 'brutes' it is not obvious that the conclusion to be drawn is that 'brutes' have concepts only in a strained analogical sense. Geach's phrase "have concepts like us" is ambiguous--it may mean "have concepts in the same sense of 'concept' as we have concepts", or it may mean "have concepts whose content is much the same as the content of our concepts." Given the differences between the life of animals and the life of humans it is very plausible to say that animals do not "have concepts like us" in the second sense, but this gives no support to the view that they do not "have concepts like us" in the first sense.

5.3 Universal and temporal concepts

The previous section was designed to provide some general doubts about whether a linguistic account of concept-possession can be satisfactory. In this section I turn to two particular examples of concepts which have been held to be essentially language dependent, and I shall try to show that the language dependency thesis is far from having been established even in these cases.

Consider first the concept Universality, i.e. the concept corresponding to the word "all". Jonathan Bennett in his book Rationality claims that only language users can make universal judgements, and it would seem to follow that only language users can have the concept Universality. (This is consistent with what Bennett says about the connection between concepts and judgements elsewhere (Bennett, 1966, p. 73)). I have myself said that having the concept Universality involves being able to make universal judgements (p. 103) so that I, too, would accept that if only language users can make universal judgements then

only they can have the concept Universality. Bennett says that a dog's behaviour in digging can reveal that it believes a bone is buried at that spot, but that it cannot reveal a belief that buried bones do not disappear. In the case of a human being, his digging at location X might well reveal that he believed (a) that he buried some treasure there and (b) that buried treasure normally stays put, but, Bennett says, we can only separate the two beliefs, or the two judgements, because the human being has forms of behaviour available (linguistic behaviour) which are appropriate to each fact separately. The dog, he claims, is not in that position: he can only dig, thus revealing only that he believes that there is a bone buried there, and not the belief that he buried a bone there and the belief that buried bones stay put. There must be behaviour open to the dog which is appropriate to each judgement separately if we are to credit the dog with having the distinct beliefs.

How then can the dog show that he judges that buried bones stay put, when all he can do is dig? This way of putting the matter can easily mislead. We are led to think that one kind of behaviour, i.e. digging, can reveal just one kind of judgement, but this is not true. The judgements revealed in an animal's behaviour depend on the context of the behaviour: We need to ask, for instance, what the dog would do if buried bones kept on disappearing. Would he then continue to dig for bones he had buried in the past? Suppose we know, somehow, that he wouldn't--we know that he would give up looking for his buried bones if they kept on disappearing. This giving up would, I think, be some evidence for the theory that the dog believes that buried bones disappear. (It might also be taken as evidence that the dog has lost interest in buried bones, but if he enjoys bones that he comes across elsewhere,

such a hypothesis would seem very implausible. It could be maintained that the dog has lost interest only in buried bones, but again such a view seems very implausible: it is bones that the dog is interested in (if it is a normal sort of dog). Note that the belief which the dog has is a general belief--it is a belief about bones in general, and not about any specific bones. The fact that the dog gives up looking suggests that he now believes that, in general, buried bones disappear.

Now suppose that a dog which has come to believe that buried bones disappear one day discovers, by chance, a bone which he buried some time ago. Two possibilities exist: (a) the dog enjoys that bone and nothing else happens; (b) the dog's discovery that that bone has not disappeared may encourage him to begin digging for other bones in the area where he found that one. In the former case there is no evidence that the dog has come to believe that bones in that area do not disappear, but in the second case there does seem to be such evidence. The dog's behaviour is just what one would expect if it had, on discovering the bone, judged that all bones in this area stay put, so that it then goes off, with some hesitation perhaps, to dig for other bones buried in the area in question.

Thus an animal's behaviour, such as a dog's digging, can reveal the existence of many beliefs at the same time. The different beliefs, or judgements, can be separated from one another but this is done by considering the context of what the animal would do if, and what he already believes. It is quite easy to imagine the case where the dog's digging merely indicates a belief that a bone is buried at that spot: We simply have to suppose that the dog's digging would be quite insensitive to whether or not other buried bones were found to disappear.

If it is quite insensitive in this respect, it becomes plausible to assume that the dog has no general beliefs about buried bones; conversely, if the present behaviour is sensitive to the disappearance of other buried bones, it is plausible to assume that the dog does have general beliefs about buried bones.

To generalize from this example, I think we can say that an animal's behaviour reveals the judgement that all p s are q s if and only if his judgement that the hitherto unobserved p_n is a q would be affected by the discovery that p_1, p_2, \dots, p_k were not q s. For this reveals whether he is merely judging that p_n is a q , or whether he is judging that p_n is a q because he judges that all p s are q s.

In addition to denying that animals can make universal judgements Bennett denies that they can make what he calls 'dated judgements'. His reason for making this denial is linked with his reason for denying universal judgements to non-language-users; as we have seen, Bennett thinks that an animal's behaviour can only reveal judgements such as "There is a bone here" and not the combination of the universal judgement "Buried bones stay put" with the dated judgement "I buried a bone here last week". The idea that without language no dated judgements are possible is not peculiar to Bennett. Wittgenstein writes:

A dog believes his master is at the door. But can he also believe his master will come the day after tomorrow? --And what can he not do here?-- How do I do it? (Philosophical Investigations II, i)

It is not clear whether Wittgenstein himself would conclude that dogs can't have the concept Day After Tomorrow; still, the general drift of his writing seems to suggest that this would be his conclusion. Following Wittgenstein, Geach writes that "it would be hard to devise non-verbal

criteria for the [aphasic] patient's having a concept of day after tomorrow." (Geach, Mental Acts, 1957, p. 13) Charles Taylor (1964, pp. 63-71) argues, like Bennett, that non-linguistic animals cannot make judgements which are not concerned with the present situation they happen to be in. Bennett grants that a sheep dog's behaviour can manifest judgement in so far as the behaviour "is apt or appropriate to the fact that the sheep are approaching the cliff-edge; its biting a bone is inappropriate to, or does not fit, the fact that the bone is very hot; and so on. But what can the poor dog do now which either fits or fails to fit the fact that it had a swim last Wednesday?" (Bennett, 1964, p. 87).

Bennett, it seems, would accept an account of judgement such that a judgement that *p* is a piece of behaviour appropriate to the fact that *p*, and inappropriate to the fact that not-*p*. He grants, too, that an animal's behaviour can be appropriate to present facts, but is sceptical concerning whether any non-linguistic behaviour could be appropriate to past or future facts. Yet neither Bennett nor Wittgenstein give much in the way of argument to show that a non-linguistic animal's behaviour cannot reveal the possession of concepts such as Day After Tomorrow. Bennett asks "What can the poor dog do ...?" and thus invites the reader to reply "Nothing, so long as the animal lacks language". Of course it may well be the case that concepts such as Day After Tomorrow and, especially, Last Wednesday, are so closely linked with a conventional linguistic system of ordering time intervals, that they cannot be said to be possessed by those who lack the appropriate conventional symbols (e.g. symbols for days of the week). However, to move from this assertion to the assertion that animals cannot be said to

make any kind of 'dated' judgements, or any judgements concerning events that are not immediately present to them, seems unjustified. I shall not try to defend the claim that a dog can have the concept Day After Tomorrow, but I shall try to make out a case for a dog having a somewhat analogous concept. In order to do this the context of the dog's behaviour has to be described in some detail; as we have seen behaviour taken out of context is usually a poor guide to what judgements an animal is making or what concepts it has. (Perhaps I should add that if anyone finds the following dog story too far beyond the limits of his credulity, a parallel story concerning an aphasiac can be substituted, and the point will remain the same).

Suppose first that we have clear evidence that the dog expects his master to return: the master usually returns at 7 p.m. and each day, shortly prior to this time, the dog gets up and watches from the window. When he sees his master's car coming down the road he runs to the door, etc. Now sometimes the master goes away for several days at a time, and during these intervals the dog is sent to one of two nearby kennels. Which of the two kennels the dog is sent to depends on whether the master plans to be away for two or for three days. Kennels A will take the dog for two day periods, kennels B will only take him for three day periods. Each of the kennels has a van which is used for picking up dogs and transporting them. The van belonging to kennels A is large, noisy and red, the van belonging to kennels B is small quiet and blue. Now suppose that the dog has been sent to each of the kennels several times and is therefore familiar with the procedure of being picked up by each of the vans. Suppose he shows rather less enthusiasm for being collected by the blue van than for being collected by the red van. This, perhaps,

could be evidence that he knows that going in the blue van means a longer separation from his master than going in the red van. (We assume that other differences in the vans and in the conditions at the kennels can be shown to be irrelevant). Having thus set the stage we now suppose that the master begins to go away regularly for three days at a time. On most of these occasions the blue van calls for the dog, but, just occasionally, there is no room at kennels B and the red van appears because the master has persuaded kennels A to take the dog for an extra day. The dog shows no particular disinclination to go in the red van on these rare occasions. But now suppose the situation is reversed: the master takes to going away for two days at a time; normally the red van calls; but just occasionally there is no room at kennels A and the blue van arrives by special dispensation from kennels B. The result is that the dog protests vigorously and will not go in the blue van. Such behaviour clearly requires explanation, and in this context we want an explanation in terms of what the dog expects. He is familiar with the consequences of going in the blue van, and it is therefore possible that when he sees the blue van he expects to be away for three days. Similarly, it is possible that when he sees the red van he expects to be away for two days. He is also, at present, used to the routine of his master returning after two days (e.g., suppose the following counterfactual conditional is true: if the dog were kept at home during his master's absence he would not go to the window on the first day, but would go and watch on the second). If we allow the dog all this--which is not logically impossible or even empirically fantastic--then it is hard to avoid interpreting the dog's refusal to be taken in the blue van as manifesting the judgements that he is going to be taken away for three days, that his master will return

in two days, and hence that he (the dog) will be away for longer than his master. Now if the dog does believe that he will be away longer than his master, he must have the concept Away Longer Than, which is clearly a temporal if not exactly a dated notion.

Now it may, I grant, be objected that this is not the only possible explanation of the dog's behaviour, and it may be suggested, too, that there is a simpler hypothesis available, which would therefore be preferable, i.e. the hypothesis that around the time the blue van approaches the dog 'decides' to protest more strongly than usual about three-day separations. Such a hypothesis might indeed be simpler, but there may be evidence against it. We already have some idea of how strongly the dog objects to three-day separations per se, and there may be evidence available from the dog's reactions to future ordinary three-day separations that his attitude has not changed. That is, we may have very good evidence that it is only in the special circumstances where he believes that his master will be back in two days, whereas he (the dog) will be away for three days, that he protests vigorously. It could be held that the dog has 'decided' on the special occasions in question to object more strongly to three-day separations per se, but this now has the character of a purely ad hoc assumption, and is therefore methodologically unsound.

It seems to me, from considering examples of this sort, that Bennett's question "What can the poor dog do now....?" is misleading. One can't describe some simple behaviour pattern of the dog, which, given the dog's goals, is always appropriate to the fact that it will be away longer than its master. What behaviour is going to manifest the judgement, will depend on the details of the 'surroundings', especially on the

details of what else the dog believes or knows. I should emphasise that I do not claim that the behaviour of the dog in the circumstances described proves that it made a certain judgement or had a certain belief. Other explanations of the behaviour are always possible, and they may be incompatible with the account in terms of judgement. My only claim is that such behaviour in such circumstances gives us some reason to suppose that the dog made the judgement or had the belief, and that it may be the only non-ad hoc hypothesis available. This is enough for my purpose, for if we can have good reason to believe that a non-language-using animal has the concept Away Longer Than we must admit that it is possible for such a creature to have this concept. There is no logical bar to the possession of this concept by an animal, which leaves us with the empirical question of which animals (if any) can acquire the concept.

I want to emphasise that that it is no part of my thesis that any concept may in principle be possessed by an animal; some concepts such as Lying seem to be essentially bound up with language (contrast Deception, which is not); others seem to be of such complexity (e.g. Electron) that one can't imagine how anyone without language at his disposal, could reveal that he had the concept. My account of concept possession is quite compatible with the fact that some judgements can only be expressed in language, but I would draw attention to the fact that the "can" here is open to two interpretations, i.e. logical and psychological. There are cases where the making of judgements and the having of concepts is logically dependent upon the judger being a language-user; the most obvious examples being linguistic concepts such as Noun Phrase. But there are many other judgements, and concepts, which are such that we cannot see how anyone could have the concept unless he

was familiar with some symbol-system. I have tried to make out a case for a dog having the concept Away Longer Than, but it is hard to see how one would even begin the corresponding stories for Cousin or Electron. However, to say that one cannot see what would show possession of a concept is not the same as saying that a non-language-user can't in principle have the concept. It seems to me that philosophers should be careful, at least, when they make a priori pronouncements about whether an individual without language can have a particular concept. Even in the case of Cousin and Electron, perhaps, we should do well to suspend judgement until we have had the opportunity of seeing a detailed description of the abilities of an aphasic genealogist or experimental physicist. Of course it may well be the case that we will never be able to study such descriptions because none may become available, but we need to bear in mind that empirical research may force people into describing cases that not even the most imaginative philosopher or science fiction writer could dream up. The main point I would insist on is that each case should be considered in detail on its merits and that if it is claimed that having the concept X necessarily involves the possession of linguistic ability, then it should be explained why this is so.

The aim of this section was to show that in the case of temporal and universal judgements no conclusive reasons have been given for saying that only language-users can make such judgements, and hence no conclusive reasons have been given for saying that only language-users can have the corresponding concepts. I hope to have shown, in this section and the last, that although there may be many concepts the possession of which does involve (logically or psychologically) some linguistic competence, not all concepts fall into this category. Consequently, the linguistic

account of concepts cannot be regarded as a general account. What validity it does have is, I think, a consequence of its being a special case of the account I have already given; that is, the linguistic account of concept-possession is obtained from my account by restricting the judgements involved to judgements made linguistically.

CHAPTER SIX

THE NATURE OF CONCEPTS AND CONCEPTUAL SCHEMES

6.1 The nature of concepts

Up to this point I have been trying to give an account of what it is to have a concept, and I have said that to have a concept is to have a capacity to be right about whether things are of a certain kind. I have also given some account of what it is to have a capacity, and of how capacities are related to their bases, and have said something about the notions Being Right, Thing and Kind. All this, to repeat, was intended to explain what it is to have a concept, and it now remains to consider the seemingly more fundamental question of what a concept is.

Now it may seem that there is no particular problem here. For concepts are, it may be said, what people have when they have concepts, and what people have when they have concepts are certain capacities. Hence, it may be said, concepts are the capacities which we have been discussing in the previous chapters. That is, concepts are capacities to be right about whether things are of a certain kind. This line of thought is, I think, at the back of any philosopher's mind if he argues that concepts are capacities. For example, Price moves from saying "To possess a concept is at least to have the capacity of recognizing instances" (Price, 1953, p. 35) and "To have a concept...is to have the capacity of recognizing instances" (ibid., p. 114) to "A concept is a recognitional capacity..." (ibid., p. 277), and it is hard to see how such a move can be justified without an appeal to the line of thought just mentioned. This line of thought has recently been made explicit by Nørreklit (1973, p. 44):

"1st premise: Concepts are what we have when we have concepts.

"2nd premise: What we have when we have concepts are particular capacities.

"Conclusion: Concepts are particular capacities."

Nørreklit accepts the argument as sound and uses it to defend the position that concepts are capacities. However, while the argument may appear valid at first sight, the consideration of similar forms of argument throws considerable doubts on its validity. Consider, for example, the following arguments:

(1) High moral principles are what a person has if and only if he has high moral principles.

What a person has if and only if he has high moral principles is the disposition to act in certain ways.

High moral principles are the disposition to act in certain ways.

This argument is of the same form as Nørreklit's argument, but looks distinctly suspicious. One might grant that to have high moral principles is to be disposed to act in certain ways, but moral principles themselves are hardly dispositions.

Consider now

(2) A house is what a person has if and only if he has a house.

What a person has if and only if he has a house is the status of a house-owner.

A house is the status of a houseowner.

Here it seems obvious that there is something badly wrong.

The premises are acceptable, but the conclusion is nonsense. Yet (2)

is of the same form as Nørreklit's argument, namely,

(3) An x is what a person has if and only if he has an x. What a person has if and only if he has an x, is a y.

An x is a y.

Now if (2) is invalid it follows that (3) cannot be a generally valid form, and hence that Nørreklit's argument may, in spite of its initial plausibility, be invalid. Further, where we have a form of argument such as (3) which appears formally valid, yet is not, the most likely reason for its being invalid is that there is an ambiguity in one of the terms. Hence, since there is no reason to suspect any ambiguity in the term "person" in (3), the only likely candidate is the verb "has". If we consider (2) again we see that in the first two, and in the fourth occurrence of this term, "has" can be replaced by "owns", where "owns a house" is understood as meaning "has bought or inherited or built a house", these being the ways in which it can be true that one owns a house. But in the third occurrence of "has" in (2), "has" clearly does not have this meaning. To say that one has the status of a house-owner is not to say that one has built the status, or that one has bought or inherited it in the way one buys or inherits a house. There is a difference between the having of a house and the having of a status, just as there is a difference between having friends and having kidneys, or having sugar in one's tea and having money in the bank. The verb "to have" is multiply and subtly ambiguous--it gets its detailed meaning from its context, from what sort of thing is had and what sort of relation exists between the haver and the thing had. But if this is so the argument form (3) cannot be said to be valid. Whether particular instances are valid will depend

on whether "has" has the same sense in its third occurrence as in its other three occurrences. Hence if we want to decide whether Norreklit's argument is valid we must first decide whether "has" in "he has the concept X" has the sense it has in "he has the capacity to Y".

Let us consider first how "has" is used in "he has the capacity to Y". To say that someone has a particular capacity is to characterize him in a certain way. In the symbolism of the predicate calculus we could represent "p has the capacity to Y" by H_p where Hx stands for "x has the capacity to Y". H could then be expanded along the lines indicated in chapter 2. We note that p has the property H , but that we need no symbol to represent the relation "having" which might be said to exist between p and H . That p has the property H is already expressed in the symbolism H_p . Further, if we expand H_p into $(\exists k) (\exists c) (kp.(y)(t) (cyt.kyt, Wyt \rightarrow Yyt))$ we see again that we need no symbol to represent the 'relation of having' which might be said to exist between p and the capacity to Y . It would be wrong to represent this 'relation' by R_{pc} , where R stands for the 'relation of having' and c stands for the capacity p has. For this is to try to represent in the symbolism something that the symbolism shows in a quite different way. In brief, the "has" in "p has the capacity to Y" is the "has" of characterization, rather than a term denoting a relation between p and the capacity to Y .

If we turn now to the use of "has" in "p has the concept X" the situation is more problematical. At first sight one may be inclined to argue that if "p has the concept X" is equivalent to "p has the capacity to Y", and if to say that p has the capacity to Y is to characterize p in a certain way, then to say that p has the concept X is to characterize p in a certain way. Hence, it might be said, the "has" in "p has the

concept X" must again be the "has" of characterization. Hence, there is no ambiguity in "has" (or "have") in Nørreklit's argument, and the argument is valid. However, this would not be satisfactory. If p has the capacity to Y then what characterizes p is the capacity to Y. (We could say that what characterizes p is having the capacity to Y, but this would come to saying the same thing; just as if we say that Jones' actions are characterized by having the quality kindness, we are only saying more long-windedly what could be expressed by saying that Jones' actions are characterized by kindness.) However, if p has the concept X this does not mean that p is characterized by the concept X. A person cannot be said to be characterized by the concept X, as he can be said to be characterized by the capacity to Y. He can be said to be characterized by the possession of the concept X, but this just shows that the "has" in "p has the concept X" is not the "has" of characterization; it is some sort of relational "has". To draw another analogy: a person can be characterized by having a long nose and a friendly disposition. To say that he has a long nose is to say that he (or his body) stands in a certain relation to a long nose (i.e., that of whole to part), and this would be represented in the notation of the predicate calculus by $I_{pn}.L_n$, where I_{xy} stands for "x includes y" and L_x stands for "x is large". On the other hand, to say that a person has a friendly disposition is not to say that he stands in a certain relation to that disposition, and this shows up in the fact that one would represent this statement in predicate calculus symbolism simply by F_p . (It is true that one can invent a predicate 'long-nosed' and so represent the fact that p has a long nose by N_p , but the point is that N_p can be expanded into $I_{pn}.L_n$, whereas there is no corresponding expansion involving p's standing in a relation

to something, in the case of Fp). As with dispositions so with capacities: p 's capacity to judge correctly whether things are f s is one of p 's characteristics, analogous to his kindness, but the concept F cannot be said to be one of his characteristics. People aren't characterized by certain concepts, but by having certain concepts, which means that this having is not itself a matter of characterization.

Now if this line of argument is right, then "has" (or "have") is ambiguous in Norreklit's argument. However, it is not just a matter of the word denoting two different relations, as in the fallacious argument:

Fred is sound in all his limbs, so Fred has two legs.

Fred has just bought a couple of legs of lamb at the butcher's, so Fred has another two legs.

Fred has four legs.

The trouble with Norreklit's argument is that "have" in its third occurrence doesn't denote a relation at all, yet the sense of the second premise depends on its denoting a relation. Hence the second premise is nonsense.

I maintain then that Norreklit's argument does not succeed in establishing that concepts are capacities. Further, my discussion of the argument throws considerable doubt, not only on the argument, but also on its conclusion. For if concepts were capacities they would characterize people as capacities do, yet it seems absurd to speak of concepts as characterizing people. We can reinforce this point by considering several other objections to the view that concepts are capacities:

(1) Concepts can be precise or vague, but we would not naturally say that a person's capacities for correct judgement could be precise or vague. His judgements may have these characteristics, but hardly the capacities themselves.

(2) One can think of the world in terms of certain concepts, but not in terms of certain capacities.

(3) One can explain a concept to someone, but this is nothing like explaining a capacity.

(4) One can clarify concepts, but not capacities.

(5) One can understand or grasp concepts, but understanding a capacity is quite different from understanding a concept, and 'grasping a capacity' seems barely intelligible.

Now I emphasized in my introduction that to approach the question "What is a concept?" though investigating 'what we should say' has its limitations. However, where a whole list of incongruities, such as that above, can be given, it seems that an explanation is called for. Since, to the best of my knowledge, no one has ever given a satisfactory explanation of why these incongruities should exist if concepts really are capacities, it seems to me that the capacity account is questionable, and in default of some positive argument in its favour, highly questionable. I have suggested that the one argument which has been put forward in its favour--Norrreklit's argument--is unsatisfactory, so that at present the onus is on defenders of the view that concepts are capacities to prove their case.

On the other hand, if concepts are not capacities, the question arises of what they are. One possible way of replying is the Rylean way I mentioned in Chapter 1 (p. 24), i.e., that the question really should

not be raised in this form. According to Ryle "it is not true in any natural sense that 'there are concepts'"; to inquire about the status of concepts is "to start Platonic or Lockean hares." It would, I think, be quite possible to take this position while accepting the account I have given of concept possession. For one could, when confronted with talk about concepts 'translate' this talk into talk about having concepts. For instance, if someone said "The concept of electricity did not exist in the 12th century" the translation might be "No one in the 12th century had the concept of electricity". Or if someone said "The existence of certain concepts presupposes the existence of language" the translation might be "People cannot have concepts unless they have a language". Up to a point, I think, such 'translations' can be useful and illuminating; indeed I think that a great deal of 'concept talk' can be re-written as 'having-concepts talk'. However, there are cases where the translation becomes, to say the least, awkward. Philosophers want to speak, for example, of logical connections between concepts, and this will have to be translated into talk of logical connections between the havings of concepts, which way of putting things seems as obscure as the original concept talk.

In these circumstances, it would be desirable to avoid Ryle's way out and, if this is possible, there would be the added advantage that the question "What is a concept?" would be answered rather than - as an unkind critic might put it - evaded. In fact I think that after our discussion of concept possession we are in a position to say something about the nature of concepts as such. I have said that to have a concept is to be able to be right concerning whether things are of a certain kind, and that talk of being right presupposes the existence of certain standards

of correctness. To judge that something is of a certain kind is always to judge in the light of a standard; and it is in virtue of the standard being what it is that one is right or wrong. One has a concept, or capacity to judge correctly, only if one has a certain standard by which to judge, and this suggests the thought that concepts are standards of correct judgement concerning whether things are of certain kinds. I say "suggests the thought" rather than "shows" or "proves" because the line of thought here is similar to Nørreklit's, and we have seen that such lines of thought may be fallacious. On the other hand they may not be: if one has concepts in the sense of "has" in which one has standards, then a Nørreklit-style argument will indeed show that concepts are standards.

It seems to me that the two uses of "has" are very much the same in this case. One has a concept - in the strong sense which I distinguished (p. 100) from understanding a concept - if one 'lives by' the concept, if one is committed at least provisionally to the concept's validity, if one judges in accordance with the concept, if one classifies things in a particular way. In the same way one has a standard of correct judgement if one lives by that standard, judges in accordance with it, classifies things in accordance with the distinctions which the standard highlights. The idea that concepts are standards of some sort lies at the back of several traditional accounts of concepts or universals. The Platonic Forms were, among other things, standards by which one could judge whether things were of particular kinds. And the mental image account of concepts requires the image as an 'exemplar' by which one can judge whether a thing

is of a certain kind or not.

There are, admittedly, great difficulties in the way of accepting a view of concepts which makes them out to be standards in the sense of Platonic Forms or in the sense of mental images. However, the difficulties here may be due not to any impossibility of identifying concepts with standards, but to the impossibility of identifying standards with such things as Forms or images. I have in Chapter 4 placed considerable emphasis on the fact that people (or animals) only acquire concepts in a social context which allows us to speak of standards of correctness. Standards themselves, I suggest, can only exist in such a context; indeed to say that a standard exists seems to be to say that there exists a community in which, in virtue of its practices of teaching, correcting, imitating, etc., there are correct and incorrect ways of doing things. No standards can be said to exist among bees or amoebae because these animals do not interact with one another in the appropriate sort of way - their interactions fall under such headings as "instinct", "social facilitation", "conditioning", etc. By contrast, among dogs or baboons we may begin to see standards of correct behaviour emerging, and hence the beginnings of judgement and concept possession.

By way of explaining what a standard is we can say at least that a standard exists where such things as teaching, imitation and correction exist. A standard of correct judgement concerning whether things are fs exists in a community when in that community people can be right or wrong about whether things are fs, when they can be open to correction in the light of things being or not being fs. Hence where a standard of correct judgement exists in a community, some people, at least, in that community will have the corresponding concept, and vice versa, where people

have a concept there is a standard of correct judgement which they have. The concepts they have can in fact be identified with the standards of correct judgement, and having the concepts amounts to having the standards.

In further defence of the view that concepts are standards of correct judgement we may note that the 'linguistic' objections I raised against the view that concepts are capacities all fail to apply to the view that concepts are standards. For,

(1) Standards as well as concepts can be precise or vague; one can have a precise standard of measurement; one's standard of what counts as an animal may be very vague compared with a biologist's standard.

(2) One can think in terms of certain standards, in terms of whether things measure up to being fs or not.

(3) One can explain a standard to someone who is not familiar with it - e.g. one can explain a standard of marking to some one to is to mark the examination papers one has set.

(4) Similarly, one can be said to clarify standards just as one can be said to clarify concepts.

(5) One can understand and, I think, grasp standards. For instance, it seems quite natural to say that someone has grasped the standard by which these examination papers were marked.

Points such as these show that the notions Concept and Standard are very closely related, and my suggestion is that concepts are one particular sort of standard, i.e., standards of correct judgement concerning whether things are of a certain kind.

Having finally said what I think concepts are, I now turn to the elucidation of some phrases involving the terms "concept",

"conceptual", etc. I shall do this partly through translations of 'concept talk' into 'having-concepts talk', but in the more recalcitrant cases I shall rely on my contention that concepts are standards of correct judgement.

6.2 A partial concept glossary

The list of uses of the terms "concept" and "conceptual" that follows is not intended to be in any way exhaustive. I hope, however, that it covers the commonest, and the most important, phrases used by philosophers and psychologists, which involve these terms. The detailed explanation of some of the phrases listed here will be carried out in later sections of this chapter. For convenience I have divided the phrases into several groups.

(1) Having a concept

Understanding a concept

Grasping a concept

I have already given my account of "having a concept", and I have suggested that this notion is the key notion in understanding other phrases involving the term "concept". In Chapter 3 I also gave an explanation of the difference between having and understanding a concept. To have a concept, in one (strong) sense is to think of the world in terms of that concept, and what this amounts to is what I have been explaining in my previous chapters. To understand a concept one does not have to have, oneself, the belief-connections that are involved in having the concept; all that is necessary is that one should be familiar with these belief-connections perhaps because one knows of people who have them. "Grasping a concept", is, I think, usually used synonymously with "understanding a concept". Someone who is familiar with the belief-connections involved in having the concept

of phlogiston would normally be said to have a grasp of the concept, even though he did not himself have the belief-connections.

(2) Employing a concept

Using a concept

Making use of a concept

Wielding a concept

Thinking in terms of a concept

Applying a concept

One employs, uses, wields or thinks in terms of a concept, it seems, when one does something to which the having of the concept is essential. Thus to judge that something is a kestrel is to employ the concept Kestrel, to conclude that the bird must have a curved beak because it is a kestrel is to make use of the concept Kestrel, to wonder whether the bird is a kestrel is to think in terms of the concept Kestrel, and so on. We cannot say, with Geach, that concepts are capacities exercised in judgements, but judging does involve 'making use of concepts', i.e. one cannot be said to make certain judgements unless one has certain concepts as we saw in Chapter 4.

"Applying a concept" is a favourite philosophical phrase, and its use is in some ways similar to the use of "employing a concept". The difference, I think, is that one usually wants to restrict "applying a concept" to situations where judgements are made. Thus in thinking about kestrels one employs the concept Kestrel, but does not apply the concept to anything. One applies it if one judges positively that a bird is a kestrel, but if one judges that a bird is not a kestrel, then although one employs the concept Kestrel one does not apply it to this bird. In judging that the cat on the mat has no tail we should say,

perhaps, that one applies the concepts Cat and Mat, but only employs the concept Tail. Whether one applies, or only employs, the concept Negation here is not entirely clear; however my purpose at this point is not to decide such issues, but rather to give a rough guide to philosophical usages of the phrases in question.

(3) Coming to have a concept

Acquiring a concept

Gaining a concept

Learning a concept

Teaching a concept

Introducing a concept

Forming a concept

Creating a concept

Constructing a concept

Inventing a concept

Developing a concept

Accepting a concept

If we have an account of "having a concept" then "coming to have a concept" should present no difficulties. "Acquiring a concept" and "gaining a concept" seem to be equivalent to "coming to have a concept". "Learning a concept" is narrower than these, but otherwise similar to them: One might conceivably acquire a concept through having a brain operation, but this would not count as learning the concept. Teaching a concept is a matter of getting someone to learn a concept, and introducing a concept is the initial step in teaching a concept. To form, create, construct or invent a concept is to come to have, or to understand, a concept in a different sort of way. It is a matter of coming to consider the possibility

that certain relations or regularities hold in the world, and hence coming to consider the possibility of a new way of classifying things. I shall say more about the invention or development of new concepts in section 6.4. "Accepting a concept" can be understood as referring to either an event or a state. In the event sense "accepting a concept" means the same as "coming to have a concept". In the state sense, it is hard to see any difference between "accepting a concept" and "having a concept". We may note, however, that accepting a concept involves more than understanding the concept.

(4) Falling under a concept

Instances of a concept

Aspects of a concept

Criteria (for the application of) a concept

History of a concept

Boundaries of a concept

Logic of a concept

"Falling under a concept" and "instances of a concept" are two more favourite technical philosophical phrases. A thing b falls under a concept F if and only if F can be correctly applied to b , i.e., if and only if in judging b to be an f one would judge correctly. In short, b falls under the concept F if and only if b is an f . "Instances of a concept" is a phrase that is most at home within an objective theory of concepts, i.e. a view of concepts which regards f s as being particular 'manifestations' of the 'universal' F . Where a writer adheres to a subjective theory of concepts the phrase "instances of a concept" becomes ambiguous. For example, if concepts are held to be capacities for using words correctly, then wherever we have a person with that capacity we have an instance

of the concept. However, this is not what is normally understood by the phrase. Normally, an instance of a concept is simply a thing falling under that concept. "Aspects of a concept": In so far as having a concept involves having several different capacities for correct judgement it is possible for a person to understand a concept without having a complete or full understanding of it (see section 1.5). One can thus be said to understand certain aspects of a concept, but not others. A beginning physics student understands certain aspects of the physicist's concept of energy (e.g., that it is conserved) but not others (e.g. that it is convertible into mass). This idea of the different aspects of a concept should become clearer after we have discussed further the matter of conceptual connections and conceptual schemes.

"Criteria for the application of a concept": I have discussed the notion of a criterion in section 1.6, where I said that a (positive) criterion for a concept C is a set of characteristics which, when present, create at least a presumption that the thing with those characteristics falls under the concept C. So long as we have an account of such notions as "applying a concept" and "falling under a concept" there should be no difficulty with "criteria for the application of a concept".

"History of a concept". This refers to the development of a concept as this has occurred historically, the phrase "history of a concept" should present no problems once we are clear about what we mean by the "development of a concept".

"Boundaries of a concept". Philosophers sometimes speak of locating the boundaries of a concept. This can best be understood as a matter of determining whether or not things with certain characteristics should or should not count as falling under the concept. For instance, we could

ask about the boundaries of the concept Living Thing, and this would be to ask, e.g., whether viruses fall under the concept, whether science fiction 'androids' would fall under the concept, and so on.

"Logic of a concept". To explain the logic of a concept seems to be to explain what sort of concept it is, e.g., is it the concept of a material object, or of a capacity, or of a kind of event, or of a moral value, etc? and/or to explain how the concept is linked with other concepts. I shall discuss the matter of 'links between concepts' in section 6.3 below. Concepts are often said to 'have different logics' when the links, or kinds of link, they have with other concepts, are different. For example, we saw that one does not have a capacity in the way one has a dog, and this could be said to be due to a difference in the 'logics' of the two concepts Capacity and Dog.

(5) Analyzing a concept

Elucidating a concept

Explaining a concept

Explicating a concept

Clarifying a concept

Exploring (the (logical) geography of) a concept

Investigating a concept

To analyze, elucidate, etc., a concept is to determine exactly how that concept is related to other concepts. It is a matter of determining what connections that concept has with other concepts. (See below on 'conceptual connections').

(6) Kinds of concept:

Geological, moral, mathematical concepts (etc.).

Primitive simple and complex concepts.

Fundamental, basic and derived concepts.

Vague and precise concepts.

Valid and invalid concepts; concepts that correspond with reality.

Similar, equivalent and distinct concepts.

Geological concepts are of course the concepts employed in geology; i.e. they are standards of correct judgement concerning whether things are fossils, whether rocks are igneous, etc. Similarly for the concepts characteristic of other fields.

The distinction between primitive or simple concepts, and complex or compound concepts is characteristic of certain kinds of philosophical position, such as logical positivism. However, without embracing such views one can distinguish between concepts such as Red or Salty the having of which seems not to involve having any belief-connections, and most other concepts. Concepts such as Red are in this sense 'simpler' than most concepts, and form a very special class of concept. (See my discussion in Chapter 3, p. 100). Similar remarks apply to 'fundamental' and 'derivative' concepts.

A valid concept can be understood as a standard of correct judgement that is not logically contradictory, that could actually be employed in judging whether things are of a certain kind. A concept F which corresponds with reality must be more than just valid in this sense; in addition there must be fs in the world. Thus the concept Electric Current corresponds with reality in that our world is such that electric currents exist; the concept Phlogiston does not correspond with reality in that our world is such that Phlogiston does not exist. (On the other hand some versions of the phlogiston theory were perhaps so muddled that

in them there was no valid concept of phlogiston).

Two concepts are similar in so far as having one concept involves one in having similar belief-connections and similar capacities for correct judgement as the other. If exactly the same capacities are involved then the concepts can be said to be equivalent, and differ perhaps only in their verbal expressions.

(7) The concept of

A concept of

Concepts of

Our concept of

His concept of

Both the definite and the indefinite article are used with the phrase "concept of". The definite article is much commoner, but there undoubtedly are occasions for the use of the indefinite article also. For instance, scientists and philosophers have in the course of history thought of heat in very different ways. Some people have thought of heat as a subtle fluid, others have thought of it as a state of agitation of the particles constituting a body. The modern physical concept of heat which takes the amount of heat in a body as being a matter of the sum of the kinetic energies of the molecules composing the body, is very different from the 18th century concept of heat as a weightless material substance. 18th century scientists such as Black had a concept of heat which was distinct from their concept Temperature, but they did not have the modern physicist's concept.

Now this sort of talk can appear very puzzling. For if A's concept of heat is different from B's concept of heat then it seems that A and B have different concepts: A has the concept Heat_1 , whereas B has

the concept Heat_2 . But then we can hardly say that they both have a concept of heat; rather A must be said to have the concept of heat_1 and B must be said to have the concept of heat_2 . In short, if two concepts are different it seems that they must be concepts of different things, so that it makes no sense to speak of two concepts of the same thing.

The difficulty here, like several others in the philosophy of concepts, arises from thinking that having a concept is an all-or-nothing affair. But that is seldom or never the case. To have a concept is usually to have a set of interconnected capacities, and it is often possible to have some of these capacities without having the others. Thus as we saw in Section 1.4 a young child can have a concept of a triangle before it knows enough to count as having the (or our) concept of a triangle. Similarly, it is quite proper to say that 18th century chemists a had a concept of heat, since several of the belief-connections they had in having their concept were the same as the belief-connections that we have in having ours. For example they and we would expect more heat to be emitted from a white hot piece of metal than from a red hot piece, both they and we would expect that if the temperature of one end of a bar was raised, the temperature at the other end would begin to rise (both we and they think of heat as something that can flow or be conducted). Thus the situation is that we have the (our) concept of heat - we have certain standards of correct judgement in this field and will want to correct people who come to have the wrong beliefs when confronted with hot objects in various circumstances. People who have the right belief-connections have the concept, and 18th century chemists had some of the right belief-connections. For this reason we can say that to some extent

they have the (our) concept of heat, and one way of putting this is to say that they have a concept of heat. The contrast between "a" and "the" here is not unusual: "The" picks out the case we are specially interested in, while "a" is used to pick out some other case. For example, "Is he the man with the Rolls Royce in his garage?" - "Well, he has a Rolls Royce in his garage, but it's little more than a heap of scrap metal." "Does this tribe have the concept of fatherhood?" - "Well, they have a concept of fatherhood, but it's little more than a concept of a biological relationship".

(8) Conceptual connections, links.

Conceptual truths.

Conceptual necessities, impossibilities, absurdities, confusions.

Conceptual networks, frameworks, systems.

Conceptual change.

Conceptual development, growth.

This group of phrases is perhaps the most important of all, since it is these phrases, together with "conceptual analysis", which occur again and again in contemporary analytic philosophy. As I said in Chapter 1, many contemporary analytic philosophers regard the discovery of conceptual connections and truths, the removal of conceptual confusion, and the exploration of conceptual frameworks as the task of the philosopher. I shall discuss these notions in some detail in the next two sections of this chapter.

6.3 Conceptual connections

Conceptual connections are usually taken to be 'logical links between concepts'. I do not think that this is the only way of understanding the phrase, and I shall discuss a different use of it later;

however for the moment I shall understand a conceptual link or conceptual connection to be an analytic link between two concepts. It does not follow from this that conceptual connections are 'ordinary' analytic connections, such as the connection between being a triangle and having three sides. Such ordinary analytic connections are connections between things (or, in the formal mode, between terms denoting things), whereas conceptual connections are analytic connections between concepts (or, in the formal mode, between terms denoting concepts). The distinction here, which I think is crucial for understanding what conceptual schemes are, is one I hope to clarify in the course of this section.

If conceptual connections are analytic links between concepts, and if, as I argued in section 6.1, concepts are standards of judgement concerning whether things are of a certain kind, then conceptual connections are analytic links between such standards. Further, it seems reasonable to say that there is an analytic link between two standards S_1 and S_2 if and only if it makes no sense to say that S_1 exists in a community but S_2 does not (or vice versa); or if and only if the assertion that S_1 exists in a community but S_2 does not (or vice versa) is contradictory. For instance, in many communities there exists a standard of correct judgement concerning whether things are to be counted as tables or not. According to this standard a table is a thing with a flat top, a certain function, etc. We note that in asserting this standard we assert what standardly or normally is to count as a table, and not what the necessary and sufficient conditions for being a table are. Now it seems clear that this particular standard of judgement could not exist in a community unless certain other standards of judgement existed, i.e., standards according to which it can be judged whether things have flat tops and have a certain function, etc. There could be societies where no standard existed

for whether a thing had the function of a table. That is, in such societies no objects are manufactured for the purpose of being used as "articles of furniture on which things may be placed for convenience or display". Nor are other objects, e.g. flat-topped rocks, ever used for such purposes. It is not hard to imagine a nomadic people whose way of life is such that they have no need for the functional concept in question. Nothing functions as a table in their life, so they do not have the concept of a table's function. In such a society the lack of any standard for judging whether a thing has the function in question is sufficient to ensure that they also lack the standard for judging whether things are tables. Conversely, the existence in a community of a standard for judging correctly whether or not things are tables, entails the existence of a standard for judging whether or not things have a certain function. Then it follows, according to my characterization of analytic connections above, that there is an analytic connection between the standard for judging correctly whether things are tables and the standard for judging correctly whether things have a certain function. Finally, it follows, according to my account of concepts, that the concept Table involves the concept Having the Function f , and that one cannot have the concept Table without having the concept Having the function f .

Now I would like to emphasize again that to claim that the concept Table necessarily involves the concept Having the Function f , is not to claim that being a table necessarily involves having the function f . For the connection between the concepts is a connections between standards, a connection which only standardly or normally holds between the things falling under the concepts. If the concept Table involves the concept Having the function f , then we can say that tables standardly have

the function f , but no more. That is, the possibility exists that in abnormal circumstances it may make sense to say that a table does not have the function f . Consider, for instance, the example I used in section 1.6, of the table whose only function is to serve as an example of the skill of its makers. Here we see the connection between my account of concepts and my account of criteria. The criteria for the application of a concept are the characteristics a thing must have, in normal circumstances, if the concept is to be correctly applied. The standard or concept involved in judging whether a thing is of a certain kind involves the question of whether the thing has certain (criterial) characteristics, but these characteristics need not be present if the situation is not a normal one.

To summarize: conceptual connections - of the sort I have been discussing - are analytic connections between concepts, and the existence of such an analytic connection between two concepts does not entail that there is an analytic connection between things falling under those concepts. On the other hand, where there is an analytic connection between things there is an analytic connection between the concepts of those things. We can safely say, I think, that there is an analytic connection between dogs and animals (or between "dog" and "animal"); consequently, if there is to be a standard of correct judgement in a society concerning whether things are dogs, there must be standard of correct judgement concerning whether things are animals. Hence, there is an analytic connection between the concept Dog and the concept Animal. Nevertheless, the analytic connection between dogs and animals is not the same as the analytic connection between the concept Dog and the concept Animal; the first is a connection between things, the second a connection between concepts.

I want to consider now a second and quite different sort of

case where one may properly speak of 'conceptual connections'*. If someone has the concept soluble it is clear that he must at least have the concepts Solid, Liquid, Disappear. The links between these concepts and the concept Soluble are of the sort just discussed, and unless someone has the three latter concepts we simply won't allow that he has the concept Soluble. In addition, however, if one is correctly to apply the concept soluble in judging correctly that x is soluble, it must be true that x should normally disappear when placed in the relevant liquid. In other words, that x disappears when placed in the liquid is normally necessary to the correct application of the concept Soluble to x. Thus one could say that the normal necessity of x's disappearing is a conceptual necessity: it is necessary upon condition that a certain concept has application to x. Thus in the case of this second sort of conceptual connection, the applicability of a certain concept provides a necessary connection between events. What we have here is a conceptual connection not in the sense of an analytic link between concepts, but in the sense that the applicability of a concept provides a necessary (conceptual) link between events. It may seem rather odd to regard the connection between something being placed in a liquid and its dissolving as a conceptual necessity, but it is not really so. For, apart from extreme Humeans, everyone would agree that there is some sort of necessary connection between the events - it is not accidental that copper sulphate dissolves when placed in water. The only serious question is how we are to understand this necessity, and I have suggested (in Chapter 2) that it is best understood in terms of the nature of the substances involved, or, what comes to the same thing, whether certain concepts can be correctly applied to the

* Cf. Hamlyn (1961) on the difference between these two sorts of conceptual connection.

materials in question.

If it does seem odd to regard the connection between copper sulphate's being placed in water and its dissolving as a conceptual connection, it may be helpful to consider some parallel examples where the point is more easily appreciated. For instance, it is surely quite plausible to regard the truths of arithmetic as conceptual truths. For it is necessary that $7+5 = 12$, but the necessity is not an analytic one; and conceptual truths in general seem to be truths that have a necessity that is not analytic, or not straightforwardly analytic, like the connection between being a triangle and having three sides. Arithmetical necessity is best explained by saying that relations such as $7+5 = 12$ must be accepted if we are to employ the basic concepts of arithmetic i.e., '0', '1', 'successor', or if we are to engage in arithmetical activities such as counting at all.*

Similarly, in geometry, the truth of Pythagoras' theorem is logically necessary relative to the employment of Euclidean concepts. If we think and act in terms of these concepts then we must (logically) accept Pythagoras' theorem; but of course if we naturally employed, say, Riemannian concepts then Pythagoras' theorem would lose its status as a necessary truth. Thus, in general, arithmetical and geometrical truths have a necessity that is relative to the employment of certain concepts or conceptual schemes. Since their necessity is thus concept-dependent it is appropriate to speak of it as a conceptual necessity.

Now it seems to me that many scientific laws are in the same sort of situation.** For instance, Ohm's law is necessary relative to the employment of the concept of a material with many free electrons

* Cf. Barker (1964).

** Cf. N.R. Campbell's (1920) discussion of the connection between concepts and laws in science.

(because it follows from the fact that a material is of that sort that Ohm's law will hold of it). The law of conservation of energy is necessary relative to the employment of, for instance, the Newtonian concepts of mass and force (because these concepts involve relationships such that the law in question is deducible from them). If you accept the Newtonian way of looking at the world then certain general principles of mechanics become necessary truths, but they are necessary relative to the employment of Newtonian concepts. In the same way the indeterminacy principle of quantum mechanics is necessary to the employment of quantum-mechanical concepts; it is a conceptual necessity that there can be no 'underlying determinism' or 'hidden parameters' such that the statistical laws of quantum mechanics are consequences of these underlying deterministic laws. However, this does not mean - despite some extravagant claims by physicists themselves - that physics will never return to a comprehensive deterministic theory*, since the necessity for the indeterminacy principle is only a conceptual necessity. The necessity here concerns the fact that quantum mechanics is irretrievably indeterministic; but the fact that it is a conceptual necessity allows for the possibility that an equally powerful explanatory scheme might be developed which was deterministic in nature: i.e. physics is not irretrievably quantum-mechanical.

I have been concerned in this section to draw attention to two different sorts of case where we can speak of 'conceptual connections' or 'conceptual links'. Once we have an established usage for these phrases the phrases "conceptual truth" and "conceptual necessity" should pose no problem. A conceptual truth (or necessity) is a truth which obtains in virtue of the existence of a conceptual connection of one

* Cf. Feyerabend (1970).

sort or the other. Thus it is one kind of conceptual truth that the concept Dog involves the concept Animal; that the concept Table involves the concept of a certain function; that the concept Knowledge involves the concept Truth; that the concept Peace involves the concept War; etc. It is another kind of conceptual truth that $2 + 2 = 4$; that the angles of triangles add up to two right angles; that energy is conserved; that Ohm's Law holds of metals; etc.

Analogously it is conceptually impossible, or absurd that the concept Table should not involve the concept of a certain function; that the concept Knowledge should not involve the concept Truth; etc. And in a quite different sense it is conceptually impossible or absurd that $2 + 2 = 5$; that the angles of a triangle should add up to more than two right angles; that energy should not be conserved; that Ohm's law should not hold of a metal, etc. I do not claim that all these conceptual impossibilities are on the same level - clearly there is a greater absurdity in " $2 + 2 = 5$ " than there is in "Energy is not conserved", but I do claim that these absurdities have in common that they are incompatible with conceptual necessities of my second sort.

Once we have an account of conceptual connections it also becomes possible to give an account of conceptual frameworks. For a conceptual framework can be regarded as a set of concepts together with their interconnections. A conceptual framework will involve not only connections such as "The concept Soluble involves the concepts Liquid, Solid, and Disappear" but also connections such as "If the concept Soluble applies to a substance, then, if that substance is placed in the appropriate liquid it must normally disappear". The 'conceptual framework' of Newtonian mechanics, for instance, involves not only connections such

as "The concept Acceleration involves the concept Velocity" but also connections such as "The concept Potential Energy can only be applied if the law of conservation of energy holds". A conceptual scheme is not something that can be detached from empirical findings; it is not a purely abstract system, but is intimately bound up with the empirical regularities on which, in science at least, it confers the status of laws or 'natural necessities'.

In the case of non-scientific conceptual schemes I think that similar points can be made. The conceptual scheme of what one might call common-sense Western morality involves not only connections such as "The concept Murder involves the concept Killing" but also connections such as "The concept Property can only be applied if it is a moral fact that one ought not to take from another what he has worked for, bought or inherited." For one cannot think in terms of a person's property unless one thinks that it is wrong to take certain things from people. For someone who employs the notion Property (and not just the notion What Others Call "Property") it is just not an open question whether taking certain things from a person is wrong. The fact that such acts are wrong has the status of a 'moral law' or of a necessarily true moral statement. However, the necessity is a conceptual necessity, and this means that the moral law can be abandoned, but only at the cost of giving up the use of a particular concept or conceptual scheme.

6.4 Conceptual development

Given the above account of conceptual connections and conceptual frameworks we can now begin to understand what is involved in 'conceptual development', i.e. the development of new and more adequate

concepts. I shall consider first a scientific concept and then, by way of contrast, I shall consider more briefly the possibilities of development for moral concepts.

Consider first the concept Refractive Index. This concept began its life when Snell's Law (governing the degree of bending which occurs when light passes from one transparent medium into another) was established. Snell's law states that, for light of a particular colour, or as we should now say, wavelength, and for a given pair of media, the ratio of the sine of the angle of incidence bears a constant ratio to the sine of the angle of refraction. I.e. $\frac{\sin i}{\sin r} = \mu$ where μ is a constant, given the stated conditions. Different pairs of media, and different colours of light, result in different values for μ , and it is a plausible hypothesis that the variation is due to differences in the structures of the materials involved, and in the ways in which they interact with light of different colours. If we consider light of a particular colour as our standard, and also standardise the situation so that light passes from air into the selected medium, then the different values of μ that we obtain for various media can be said to characterise those media. The different μ values are presumably linked with different structural properties of the media, but even though one knows nothing about those properties one can speak of the media as having different refractive indices.

Now this is not the end, but rather the beginning, of the life-history of the concept Refractive Index. For once the concept was established various relations were found between the refractive indices and other properties of materials. For example, the velocity of light in a medium turns out to be inversely proportional to that medium's

refractive index,

$$\frac{v_1}{v_2} = \frac{\mu_2}{\mu_1}$$

as was shown empirically by Foucault. Further, this relation is not just another empirical discovery; it is deducible the assumption that light is a wave motion. (On a particle theory of light one would expect the inverse relation to hold). Given that light is a wave motion one comes to an understanding of refractive index in terms of wave fronts, whose behaviour can be illustrated by analogy with water waves. The concept Refractive Index has at this stage been caught up in an optical theory: μ now has logical relations with wavelength and frequency, whereas it started as simply an empirical measure of a ratio of angles. It would be misleading to say, however, that we are now dealing with a different concept. For the old logical connections are maintained (it is still part of the meaning of μ that $\mu = \frac{\sin i}{\sin r}$) but in addition new connections have been made; the concept Refractive Index has been developed or deepened. It has become part of a larger system and as a result Snell's Law has been elevated from the status of a regularity to that of a genuine necessary connection. For Snell's relation must be accepted if we are to employ the concept Refractive Index; it is no longer a matter of thinking "Perhaps it holds, perhaps it doesn't, let's look at the experimental results". For if the experimental results contradict Snell's relation now, much more is at stake than the revision of our beliefs about the extent to which light rays bend at the boundaries of transparent media. (It is worth noting that conceptual development such as that I have described should be distinguished from mere conceptual change. In conceptual development some, and ideally all, of the old

logical connections are maintained.* In conceptual change that is not conceptual development the old logical links are simply abandoned in the light of new empirical discoveries or changing intellectual fashions. I would regard the changes which have occurred in concepts such as Planet, Atom, Mass as clear cases of conceptual development, whereas the change from regarding certain phenomena as cases of demonic possession to regarding them as cases of mental illness I would be more inclined to regard as simply conceptual change).

In the case of scientific concepts, at any rate, the picture I want to paint is one of observed regularities leading to the development of concepts which help to explain the regularities**, the discovery of further empirical relations between the things falling under those concepts, and this leading to the development of 'higher level' concepts. At the same time pictures or models are developed which incorporate the concepts and link them in a coherent theory.

I have pointed out how the development of the concept Refractive Index has been affected by its incorporation into a particular theory, but there is also another way in which it has been moulded. With any concept, the way in which it is first employed is hardly likely to be entirely satisfactory. Situations will arise where it is not clear whether the concept is applicable or not. We saw that this was so in the case of the concept Soluble. (See my discussion on pp. 67-69). The simple concept of a disposition to disappear when placed in water has

* Cf. H.R. Post's account of the continuity in the development of scientific theories. (Post, 1971/2).

** Cf. W.W. Rozeboom's account of concept development via what he calls 'ontological induction' (Rozeboom 1961 and 1971).



been replaced by something more sophisticated in the light of empirical discovery. The same applies with Refractive Index. One is faced, for example, with the fact that in the case of substances such as Iceland Spar there are two distinct refracted rays, so that it becomes nonsense to speak of the refractive index of such substances. We can no longer think of refractive index as a property of a material which, like its density, can have only one value for a uniform piece of material.

In general, the development of a concept is influenced both by new empirical discoveries which force us to make decisions on what will and what will not count as falling under the concept, and by new imaginative pictures or models which are such that if they are accepted they will make it understandable why the concepts we employ have an application. (E.g. the picture of light as a wave motion makes it comprehensible why the concept Refractive Index has an application).

Now I do not claim that the development of concepts outside science proceeds in exactly the same way as that just described. However, there are similarities that are worth considering. Let us take the field of moral concepts as our comparison, and consider first whether there is any development of moral concepts corresponding to that which has occurred in the case of Solubility. It is not hard to see that there could be development of the following sort: Suppose it is generally agreed that stealing is morally wrong. We have the concept of stealing and are agreed on its application in many circumstances. The criteria for its application are roughly that a person steals if he takes another's property. But this is not the whole story, since stealing is a moral notion, and so incorporates something like an

imperative. I.e., to say "He stole it" is normally to commit oneself to the view that he acted wrongly. This 'normative' aspect of the concept becomes extremely important when it comes to making decisions about cases that do not clearly fall or fail to fall under the concept. Since an important function of moral judgements is to commend, influence, condemn, etc., it is crucial that the 'normative' element be retained in any modification of a moral concept, so that when the question arises "But can you really count that as stealing?" the crucial point will be whether the act in question is wrong in the same sort of way as stealing is wrong. For example, do we really want to say that the boys who take a few apples from an orchard are guilty of stealing? We may want to say not, and introduce a weaker notion of 'pilfering'. Do we really want to say that the shop assistant who takes money from the till without telling her employer, but with the sincere intention of paying it back in the future, is stealing? Don't we have a (nameless) concept here which is clearly distinct from the concept Stealing? Something which could be called 'illicit borrowing' perhaps?.

I want to suggest that moral concepts may at least develop in this sort of way*, and that the process is not greatly different from one kind of conceptual development that we find in science. The concepts we start with are usually too primitive, too simple, to cope with what we come across in our practical experience, and so in the light of this experience we narrow the application of our concepts and invent new concepts to cover what is now excluded. In addition, of course, we may broaden our concepts when we notice new phenomena that fit the criteria for our present concepts, although we would not at

* Cf. Kovesi (1967).

first have recognized these phenomena as falling under the concept. For instance, one may come to speak of solids dissolving in solids, once one's concept Soluble has been developed through chemical understanding, or one may come to apply the concept Violence in situations where there is no use of physical force.

It seems quite possible then that moral concepts can develop in the manner just described. The interesting question remains of whether they can also develop in the manner I sketched for the concept Refractive Index on pp. 186-187. I suggested on p. 185 that the beginnings of such development may be seen in the case of concepts such as Property whose application presupposes the acceptance of certain 'moral regularities', e.g. that it is normally wrong to take from a person that for which he has worked. Whether any further development is possible here is unclear to me; such further development would involve setting up moral theories analogous to scientific theories, such that if the entities postulated by the theories existed then certain moral principles would follow as a matter of course. However, to put it like this may be to press too hard the analogy with science. What we might say is that certain moral pictures of the world, or certain pictures of the moral world, certainly have as consequences certain moral principles. If someone thinks in terms of the picture of a world creator who is also the father of all human beings, it follows that he must accept that the appropriate relations between human beings in general should be analogous to those which ought to exist between siblings. For someone who thinks in terms of the picture it will be a kind of necessary truth that 'all men are brothers'; it will be an idea that cannot be given up without abandoning the picture in which it is embedded. In the same sort of way, perhaps, the concept of the soul and its immort-

ality could be developed out of the moral belief in the ultimate goodness of the world combined with the moral belief that many people are very unjustly treated in this world, or with the moral belief that it is wrong not to discharge all one's obligations (that even death does not let one off).*

Whether such ideas as these could be developed I do not know; however, it seems to me that if moral concepts are open to development in ways analogous to the way in which scientific concepts develop, then the direction of such development is likely to be in the direction of religious or quasi-religious pictures of the world.

6.5 Conclusion

I want now to pull together the main points which I have tried to establish, and then look back at the various accounts of what concepts are that I discussed in Chapter 1.

Starting at the end: I have argued that concepts are standards of judgement concerning whether things are of certain kinds. Such standards can only exist in societies in which there are activities such as teaching, imitation and correction that sustain the standards and ensure that each member of the society comes to have at least some of the standards.

In coming to acquire a standard of correct judgement concerning whether things are of a certain kind, i.e. in coming to have a concept, a person (or animal) acquires a capacity to be right concerning whether things are of that kind, and insofar as he is right through

* Cf. a remark of Wittgenstein reported by Norman Malcolm (Malcolm, 1958, p. 71).

his having the capacity to be right he judges correctly. His behaviour constitutes judging insofar as it is open to correction in the light of the facts, and if it is open to correction in the light of the fact that a thing is or is not of a certain kind, then he judges that the thing is or is not of that kind. Further, if a person is capable of judging correctly whether things are of a certain kind, he will, when in a suitable state and in a suitable position with respect to a thing of that kind, be disposed to judge that it is of that kind. Such a person can be said to recognize that the thing is of that kind. It follows that a person with the concept F will recognize whether things are fs when he is in a suitable state and suitably placed. Thus, it is quite correct to say that having the concept F is a matter of having a recognitional capacity, and this is quite compatible with saying that having a concept F is a matter of having a capacity for correct judgement.

My account of concept-possession as involving capacities for correct judgement concerning whether things are of certain kinds requires an account of capacities, which I gave in Chapter 2, and an account of correct judgement which I gave in Chapter 4. I discussed the notions Thing and Kind to some extent in Chapter 3, but as I said there, these are formal concepts which present great difficulties of elucidation. My account of capacities made reference to the notion of the base of a capacity, i.e. that in virtue of which a person has the capacity. In the case of having a concept, the base, I argued, usually consists in a person's having certain belief-connections. That is, what gives a person the capacity to judge correctly whether things are of a certain kind is the fact that he is so constituted or 'set' that when he comes across, or believes he comes across, a thing which has

certain properties characteristic of fs, he immediately comes to believe that the thing will have the other characteristics of fs. He may believe that this thing has characteristics A,B,C, together with the general belief that all things with A,B,C have X,Y,Z, and hence infer that this thing has X,Y,Z, but this is not necessary. The important point is that on acquiring one belief he should acquire others, whether or not this happens via his possession of a general belief. Someone who has the appropriate belief-connections is 'set' to recognize things that a person without them is not, and it is virtue of this that he has the corresponding concept.

In the light of my account we may now look back at some of the other views of concepts which I mentioned in Chapter 1. The view that concepts are capacities for following rules is understandable in terms of the fact that in order to count as having a concept one must have a capacity to be right about certain things. To have the concept Kestrel one must have the capacity to be right about whether or not things are Kestrels, and one way of putting this would be to say that one must be able correctly to follow the 'rule' for classifying things as kestrels. Rules, like standards, presuppose a community which maintains the rules or sets the standards, so in this respect, too, it is reasonable to hold that having concepts involves having the capacity to follow certain rules. The misleading thing about this formulation is that it suggests that applying a concept is a matter of looking at the world and deciding on the basis of what one sees whether the concept is applicable. A rule is something like "Where you come across P you should classify it as "Q"." But applying a concept is seldom like this. It is clear that one does not follow a rule in applying concepts such

as Red. One does not look at a thing and decide on the basis of its characteristics that it is red. And I have said that even in the case of those concepts where one could make use of a rule (e.g. "If it has black feathers, yellow beak, tuneful song and runs as well as hops then it is a blackbird, and will mate with a dark brown bird with a dark brown beak which lays greenish-blue eggs speckled with dark brown, etc.") one normally doesn't once the concept has become familiar. In the case of concepts such as Red one can't make use of a rule because there is no such rule. The fact that one can say something about what is involved in a thing's being red is no objection to this, since one certainly cannot give a rule that specifies which colours are to count as red and which not. People simply agree that certain things are red without needing any rule by which to distinguish the reds from the blues, greens, etc. This does not mean that there are no standards of correctness in applying colour concepts; one is wrong if one classifies an ordinary orange as red, but this is not because one has broken a rule to the effect that only things with characteristics X are to count as red. We may note that the procedure of classifying things according to rules presupposes that some things are classified without appeal to rules. For a rule must say something like "wherever you find P, do Q" and this presupposes that one can already pick out things as falling under the concept P. Then there is the converse point that where we have a classification rule we do not necessarily have a concept. This I discussed in Chapter 3 (pp. 106-108).

The view that concepts are linguistic capacities is immediately understandable when we consider that judgements are frequently expressed in words. If one thinks that only a language-user can make

judgements then one is, according to my account of concept-possession in Chapter 3, committed to the view that to have concepts is to have certain linguistic capacities. However, I argued in Chapter 5 that there are no good grounds for saying that only language-users can judge.

The view that concepts are mental images fastens on the correct idea that concepts are standards by which one judges whether things are of particular kinds, but it wrongly identifies these standards with images in the mind. The account fails to come to terms with the fact that mental images can't possibly function as standards in the way required.

The view that concepts are capacities for making discriminatory responses is comprehensible as a degenerate version of the view that concepts are capacities for recognition. The latter view, I have argued, is on the right lines (although it is defective in relying on the unsatisfactory Nørreklit argument), but the view that to recognize is simply to respond differentially is quite inadequate. Plants and even some inanimate things respond selectively to their environment, but such selective response cannot reasonably be called "recognition". I have argued in Chapter 3 that there is room for a sense of "recognition" (or rather a kind of recognition) that does not involve the having of concepts. One can say that a very young child recognizes things without recognizing that they are of certain kinds. Here to recognize something is to find it familiar, although I grant that 'finding it familiar' is a phrase that itself requires explanation. Yet, however the details of that explanation would go, it does seem that a good sense can be given to a baby being 'familiar' with certain things simply in terms of how it reacts to them. However, this sort of recognition is not that which is

involved in the having of concepts. The having of concepts depends on being familiar with things as of certain kinds, it depends on learning to classify, learning to do things correctly, and all this requires the existence of a social context, whereas no such context is required if a creature is to acquire a mere selective response. (See my discussion of what sort of behaviour reveals the possession of concepts, in Ch. 4). The difference here corresponds to that between being conditioned to respond selectively to a stimulus and learning to act in terms of a perceived situation. The difference may not always show up in a creature's behaviour, but in some circumstances it will. We considered in this connection the difference between someone who has been conditioned to respond with the sound of the word "pentagon" whenever pentagonal objects appear before him, and someone who has mastered the use of the English word "pentagon". The difference between these two people will not necessarily show up if we simply present objects of different shapes and await the subject's response. However, it will show up in other circumstances. For example, we need to consider what each of these people is likely to do if he finds others calling triangles "pentagons". The person who has acquired a conditional response should not be bothered in the least by this, whereas the person who has learned the correct word will be inclined to correct those who use the word wrongly. For the first person there are no standards of correctness, there is just the fact that he responds in the way he does, whereas for the second person there is a right and a wrong about which words to use, the rightness or wrongness being backed up by the correcting activities of others.

Finally, as regards the view that to have the concept F is to know what fs are: My account of concept-possession as being a matter

of having the capacity to be right concerning whether things are of a certain kind, can be regarded as an explication of what is involved in 'knowing what fs are', an explication of what this particular sort of knowing amounts to.

In conclusion, I believe that my account of concepts draws together, and shows the relations between, the views that concept-possession is a kind of knowledge, that it involves capacities for correct judgement and recognition, and that it is often manifested in verbal abilities. My account also shows why some writers have associated concepts with rules, mental images and capacities for making discriminatory responses. My account allows for the possibility of animals having concepts, but leaves it open which animals have what concepts; the only a priori requirement here being that only social animals, or animals that can enter into forms of life involving such things as correction and imitation, can be said to have concepts. Concepts themselves are the standards by which one judges whether things are of certain kinds, and while I do not say that concepts are standards in any strictly Platonic sense, I nevertheless maintain that concepts exist, and that an account, such as the one I have presented, can be given of their nature.

REFERENCES AND BIBLIOGRAPHY

- Aaron, R.I. Universals. 2nd Edition. (Oxford, 1967).
- Albritton, R. On Wittgenstein's use of the term "criterion".
J. Phil. 56 845-857 (1959).
- Alston, W.P. Dispositions and occurrences, Can. J. Phil. 1
125-154 (1971).
- Aune, B. Knowledge Mind and Nature. (New York: Random House, 1967).
- Austin, J. How To Do Things With Words. (Oxford: Clarendon Press,
1962).
- Ayers, M. The Refutation of Determinism. (London: Methuen, 1968).
- Barker, S. Philosophy of Mathematics. (Englewood Cliffs: Prentice
Hall, 1964).
- Barnett, S.A. Instinct and Intelligence. (Harmondsworth: Penguin,
1970).
- Bennett, J. Rationality. (London: Routledge and Kegan Paul, 1964).
- Bennett, J. Kant's Analytic. (Cambridge: University Press, 1966).
- Borger, R. and Cioffi, F. (eds.) Explanation in the Behavioural
Sciences. (Cambridge: University Press, 1970).
- Borst, C.V. Review of Nørreklit (1973) in Phil. Qu. 25 87-89 (1975).
- Braithwaite, R.B. The nature of believing. Proc. Arist. Soc. 33
129-146 (1932/33).
- Braithwaite, R.B. Belief and action. Arist. Soc. Suppl. Vol. 20
1-19 (1946).
- Braithwaite, R.B. Scientific Explanation. (Cambridge: University
Press, 1953).
- Brown, S.C. (ed.) Philosophy of Psychology. (London: Macmillan, 1970).
- Bruner, J.S., Goodnow, J.J. and Austin, G.A. A Study of Thinking.
(London: Wiley, 1956).
- Calhoun, E. Human likeness and the formation of empirical concepts.
Rev. of Metaphysics 13 383-395 (1959/60).

- Campbell, N.R. Physics: The Elements. (Cambridge: University Press, 1920). Reissued as Foundations of Science (New York: Dover Publications, 1957).
- Canfield, J.V. Criteria and rules of language. Phil. Rev. 83 70-87 (1974).
- Carroll, J.B. Language and Thought. (Englewood Cliffs: Prentice-Hall, 1964).
- Chisholm, R.M. Sentences about believing. Proc. Arist. Soc. 56 125-148 (1955/56).
- Chisholm, R.M. Perceiving. (Ithaca: Cornell University Press, 1957).
- Critchley, M. Aphasiology. (London: Edward Arnold 1970).
- Darby, C.L. and Riopelle, A.J. Observational learning in the rhesus monkey. J. comp. physiol. Psychol. 52 94-98 (1959).
- Dretske, F.I. Seeing and Knowing. (London: Routledge and Kegan Paul, 1969).
- Feigl, H., Scriven, M. and Maxwell, G. Concepts Theories and the Mind Body Problem. Vol. 2 of Minnesota Studies in the Philosophy of Science. (Minneapolis: University of Minnesota Press).
- Feyerabend, P.K. Professor Bohm's philosophy of nature. In Toulmin, S. (ed.) Physical Reality. (New York: Harper and Row, 1970).
- Fleming, N. Recognizing and seeing as. Phil. Rev. 66 161-179 (1957).
- Frege, G. On concept and object (1892). Translation in Geach, P. and Black, M. (eds.) Translations from the writings of Gottlob Frege. (Oxford: Blackwell, 1960).
- Furth, H.G. Thinking Without Language. (New York: Free Press, 1966).
- Geach, P.T. Mental Acts. (London: Routledge and Kegan Paul, 1957).
- Gettier, E.L. Is justified true belief knowledge? Analysis 23 121-123 (1963).
- Hacker, P.M.S. Insight and Illusion. (Oxford: Clarendon Press, 1972).
- Hamlyn, D.W. On necessary truth. Mind 70 514-525 (1961).
- Hamlyn, D.W. The logical and psychological aspects of learning. In Peters (ed.) (1967).

- Hamlyn, D.W. Conditioning and behaviour. In Borger and Cioffi (eds.) (1970).
- Hamlyn, D.W. Epistemology and conceptual development. In Mischel (ed.) (1971).
- Hamlyn, D.W. Human learning. In Brown (ed.) (1974).
- Harré, R. The formal analysis of concepts. In Klausmeier, H.J., and Harris, C.W. (eds.) Analyses of Concept Learning. (New York: Academic Press, 1966).
- Harré, R. The Principles of Scientific Thinking. (London: Macmillan, 1970).
- Heath, L. Concept. In The Encyclopedia of Philosophy. (Ed: P. Edwards). (New York, 1967).
- Hook, S. Dimensions of Mind. (New York: Collier Books, 1961).
- Hull, C.L. Quantitative aspects of the evolution of concepts. Psychol. Monogr. 28 No. 1 (1920).
- Humphrey, G. Thinking. (London: Methuen, 1951).
- Hunt, E.B. Concept Learning. (New York: Wiley, 1962).
- Kendler, T.S. Concept formation. Ann. Rev. Psychol. 13 447-472 (1961).
- Kovesi, J. Moral Notions. (London: Routledge and Kegan Paul, 1967).
- Lenneberg, E.H. Biological Foundations of Language. (New York: Wiley, 1967).
- Locke, D. Natural powers and human abilities. Proc. Arist. Soc. 74 171-187 (1973/74).
- Lorenz, K.Z. Der Kumpan in der Umwelt des Vogels (1935). Translation in Studies in Animal and Human Behaviour Vol. 1 (London: Methuen, 1970).
- Lycan, W.G. Non-inductive evidence: recent work on Wittgenstein's "criteria". Am. Phil. Qu. 8 109-125 (1971).
- McKellar, P. Imagination and Thinking. (London: Cohen and West, 1957).
- Malcolm, N. Ludwig Wittgenstein. A Memoir. (Oxford University Press, 1958).

- Malcolm, N. Knowledge and Certainty. (Englewood Cliffs: Prentice Hall, 1963).
- Miller, N.E. and Dollard, J. Social Learning and Imitation. (New Haven: Yale University Press, 1941).
- Mischel, T. (ed.) Human Action: Conceptual and Empirical Issues. (New York: Academic Press, 1969).
- Mischel, T. (ed.) Cognitive Development and Epistemology. (New York: Academic Press, 1971).
- Moore, G.E. The nature of judgement. Mind 8 176-193 (1899).
- Morgareidge, C.C. The Nature Function and Acquisition of Concepts. Unpublished Ph.D. dissertation, Duke University (1965).
- Mundle, C.K.W. A Critique of Linguistic Philosophy. (Oxford: University Press, 1970).
- Nagel, E. The Structure of Science. (New York: Harcourt, Brace and World, 1961).
- Nagel, E. Psychology and the analysis of concepts in use. In Hook (1961).
- Nørreklit, L. Concepts. Their Nature and Significance for Metaphysics and Epistemology. (Odense University Press, 1973).
- Nuttall, A.D. Two Concepts of Allegory. (London: Routledge and Kegan Paul, 1967).
- Osgood, C.E. A behavioristic analysis of perception and language as cognitive phenomena. In Contemporary Approaches to Cognition. (Cambridge, Mass.: Harvard University Press).
- Pap, A. Disposition concepts and extensional logic. In Feigl, Scriven and Maxwell (1958).
- Pearce, G. and Maynard, P. Conceptual Change. (Dordrecht: D. Reidel, 1973).
- Pears, D. Ifs and cans. Can. J. Phil. 1 249-274 and 369-391 (1972).
- Peiffer, J. The Concept in Thomism. (New York, 1952).
- Peters, R.S. (ed.) The Concept of Education. (London: Routledge and Kegan Paul, 1967).
- Popper, K.R. Objective Knowledge. (Oxford: Clarendon Press, 1970).
- Post, H.R. Correspondence, Invariance and Heuristics. Stud. Hist. Phil. Science. 2 213-255 (1971/72).

- Price, H.H. Image thinking. *Proc. Arist. Soc.* 52 135-166 (1951/52).
- Price, H.H. Thinking and Experience. (London: Hutchinson, 1953).
- Price, H.H. Belief. (London: George Allen and Unwin, 1969).
- Rhees, R. Can there be a private language? Arist. Soc. Suppl. Vol. 28 77-94 (1954).
- Rosenstein, J. Perception, cognition and language in deaf children. Except. Child. 27 276-284 (1961).
- Rozeboom, W.W. Ontological induction and the logical typology of scientific variables. Phil. of Science 28 337-377 (1961).
- Rozeboom, W.W. Scientific inference: the myth and the reality. In Brown, S.R. and Brenner, D.J. (eds). *Science, Psychology and Communication: Essays Honoring William Stephenson*. (New York: Teachers College Press, 1971).
- Rozeboom, W.W. Dispositions revisited. Phil. of Science 28 59-74 (1973).
- Russell, B. The Problems of Philosophy. (Oxford: University Press, 1912).
- Russell, B. *An Inquiry into Meaning and Truth*. (London: Allen and Unwin, 1940).
- Ryle, G. Systematically misleading expressions (1932). In Ryle (1971).
- Ryle, G. The Concept of Mind. (London: Hutchinson, 1949).
- Ryle, G. Ordinary language (1953). In Ryle (1971).
- Ryle, G. On forgetting the difference between right and wrong. (1958). In Ryle (1971).
- Ryle, G. Thinking thought and having concepts (1962). In Ryle (1971).
- Ryle, G. Collected Essays, Vol. 2. (London: Hutchinson, 1971).
- Sellars, W. Counterfactuals, dispositions and causal modalities. In Feigl, Scriven and Maxwell (eds.) (1958).
- Shiner, R.A. Knowledge and Reality in Plato's 'Philebus'. (Assen: Van Gorcum, 1974).
- Shoemaker, S. *Self Knowledge and Self Identity*. (Itaca: Cornell University Press, 1963).
- Skinner, B.F. The operational analysis of psychological terms. (1945). In Feigl, H. and Brodbeck, M. Readings in the Philosophy of Science. (New York: Appleton Century Crofts, 1953).

- Taylor, C. The Explanation of Behaviour. (London: Routledge and Kegan Paul, 1964).
- Thorpe, W.H. Learning and Instinct in Animals. 2nd edition. (London: Methuen, 1963).
- Thurstone, L.L. The Nature of Intelligence. (London, 1924).
- Titchener, E.B. Lectures on the Experimental Psychology of the Thought Processes. (New York: Macmillan, 1909).
- Toulmin, S. A defense of 'synthetic necessary truth'. Mind 58 164-177 (1949).
- Toulmin, S. Concept formation in philosophy and psychology. In Hook (1961).
- Toulmin, S. Concepts and the explanation of human behaviour. In Mischel (1969).
- Toulmin, S. The concept of 'stages' in psychological development. In Mischel (1971).
- Urmson, J.O. Recognition. Proc. Arist. Soc. 56 259-280 (1955/56).
- Vesey, G.N.A. Seeing and seeing-as. Proc. Arist. Soc. 56 259-280 (1955/56).
- Vesey, G.N.A. Conditioning and learning. In Peters (1967).
- Ware, R.X. A Philosophical Investigation of the Relativity Thesis of Language. Unpublished D.Phil. thesis. University of Oxford, 1967).
- Warnock, G.J. Concepts and schematism. Analysis 9 77-82 (1949).
- Weinberg, J.R. Ideas and Concepts. Milwaukee: Marquette University Press, 1970).
- White, A.R. The Philosophy of Mind. (New York: Random House, 1967).
- Whorf, B.L. Language Thought and Reality. (Cambridge, Mass., M.I.T. Press, 1964).
- Wittgenstein, L. Tractatus Logico-Philosophicus. (London: Routledge and Kegan Paul, 1961).
- Wittgenstein, L. The Blue and Brown Books. (Oxford: Blackwell, 1958).
- Wittgenstein, L. Philosophical Investigations. (Oxford: Blackwell, 1953).

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